American Fruit Grower

FEBRUARY • 1956

• Progress in Sprays and Spray Practices •

THE APPLE OF YOUR EYE...

You'll have apples like **this** ➡ *with* **CRAG Glyodin.** Trade-Mark *It's rated first for scab control in experiment station tests!*

HERE'S PROOF...

The results of agricultural experiment stations in the 20 leading apple growing states show CRAG Glyodin is rated first the greatest number of times in scab control. Published results of The American Phytopathological Society showed CRAG Glyodin as first in scab control the greatest number of times, when compared to six other leading fungicides. And, for seven years thousands of growers have proven the effectiveness of CRAG Glyodin in their orchards.

Plan on using the CRAG *Glyodin Program now.* Use it all season for highest profits.

EARLY SPRAYS		COVER SPRAYS
GLYODIN for protection	ADD MERCURY when needed for back action	GLYODIN for continued protection

Glyodin in early sprays gives you lasting protection even through long spring rains. When you're in doubt about the weather or think you've missed an infection period, you can add mercury for back action.

When you use CRAG Glyodin you'll have the *best* apples at lowest cost. You'll also get the best finish and color, higher yields, summer disease control, plus suppression of red mites.

*

Send in this coupon and get the *proof* that CRAG Glyodin is the best you can use. For apples you'll receive free, a full color booklet showing the *proven facts* on cost, yield, finish, scab control, mite control, summer disease control, and many other extra benefits CRAG Glyodin gives.

CRAG BRAND AGRICULTURAL CHEMICALS

Use CRAG *Glyodin to control cherry leaf spot too!*

CRAG Agricultural Chemicals
CARBIDE AND CARBON CHEMICALS COMPANY
A Division of Union Carbide and Carbon Corporation
30-20 Thomson Ave., Long Island City 1, New York

Check Booklets You Want:

☐ Apple Booklet F-8954 ☐ Cherry Booklet F-8419

Name_____

Address_____

_____

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with Firestone CHAMPIONS

TRACTOR TIRES may appear to be the same but it's work done behind the drawbar that makes the difference.

Tests prove that on any job Firestone Champions give you all the horsepower your tractor can deliver — extra drawbar horsepower that saves time and fuel.

Firestone Champions have the proven curved and tapered bar construction that gives a sharper bite and deeper shoulder penetration. Flared tread openings insure positive cleaning in all types of soil and they won't plug at the shoulders. Extra tread plies insure longer life and more retreads by protecting against impact breaks.

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Enjoy the Voice of Firestone on radio or television every Monday evening over ABC

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"We are very well satisfied with our Cat Diesel Tractor," says David Huh, R-S Ranch, Dinuba, Calif. His D4 is shown pulling an 8' 3" offset disk.

50 WORKING DBHP

to help you accomplish more for less...

You can have the pull-power of 2 or 3 ordinary wheel-type orchard tractors, plus the maneuverability and compactness of a small tractor when you own a CAT* Diesel D4 Orchard Tractor!

In one pass, you can accomplish 2 to 3 times as much—pull far wider disks or plows—penetrate deeper—work closer to trees. Yet the compact D4 can turn in the length of its tracks and work close to trees. Positive D4 flotation and traction take you through the soft or slick spots—up hills—to haul big loads without time- and fuel-squandering slippage. Think what this can mean to you in terms of more efficient operation of your orchard or grove!

A Cat D4 Tractor combines the advantages of abundant traction and labor-saving power with Cat Diesel economy that often surpasses the smallest gasoline orchard tractors. And, the D4 burns low-cost No. 2 furnace oil.

Then there are many extra jobs you can do—smooth gullies, build an irrigation system, 'doze unwanted trees, handle custom jobs, too. Have your Caterpillar Dealer give you all the money-making, time-saving details about a Cat Diesel Orchard Tractor. See him soon!

Caterpillar Tractor Co., Peoria, Ill., U.S.A.

CATERPILLAR*

*Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.

DIESEL ORCHARD TRACTORS BOOST MAN-POWER EFFICIENCY

American Fruit Grower

REG. U.S. PAT. OFF.

The Only National Fruit Publication

Vol. 76 FEBRUARY, 1956 No. 2

FEATURED IN THIS ISSUE

Prune for Good Spray Coverage ... 13
By Maurie Semel

The Ever-Changing Fruit Disease Pattern ... 14
By John C. Dunegan

The Battle Against Orchard Insects ... 15
By Howard Baker

Keep Up-To-Date On Fire Blight Control ... 16
By Eldon S. Banta

A Guide to Apple Scab Control ... 17
By A. B. Burrell

Spring—The Season of Frosts ... 18
By Irving P. Krick

Speaking of Strawberries ... 25

Let's Modernize Our Selling ... 26
By Carroll R. Miller

Use an All-Purpose Spray ... 48
By C. R. Cutright

DEPARTMENTS

Letters to the Editor ... 5

Calendar of Coming Meetings & Exhibits ... 10

State News ... 20

The Question Box ... 22

Windfalls ... 30

New for You ... 44

Editorial Page ... 54

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LETTERS
TO THE EDITOR

Price Talks

Dear Editor:

Your editorial in the November issue relative to the cherry industry, together with price talks, is very interesting in that it is the first time I have ever seen anything of this nature in public print. It's exceedingly gratifying to learn that others not directly engaged in cherry production "lay it on the line," in no uncertain terms, that the growers should understand just where they stand and will continue in the same precarious position until they themselves do something about it.

I concur heartily in all you say in regard to the cure for this problem, "in that it calls mostly for courage," but it certainly can be done.

Here at Austmore Farms we have given this problem much thought and are equipped with a brand name that thoroughly identifies the locality and should be adequate for any food products for which the area has, justly, become famous. Other items can be added later. We have become discouraged in our efforts to organize on a large scale and have about reached the conclusion that we will go ahead alone with what we have and on a strictly high quality basis.

We feel that we have done something in a small way to help cure the ills that the growers are afflicted with but we have gone about as far as we can alone. However, we are willing, even anxious, to extend what we have to all growers if they really want to help themselves. Interested inquiries are solicited and will be answered.

Thanks very much for this editorial—hope we have more of them in the future.

East Jordan, Mich. Roger L. Austin
Austmore Farms

Nuts and Price Talk

Dear Editor:

Reading "Fruit for Health" in your November issue reminded me that perhaps I might make a contribution. Since my name is generally linked with nut tree experimentation I will dwell on last season's experience.

Our nursery and orchard are located at River Falls, Wis., and many of the nut varieties do not always reach maturity at this location. However, the year 1955 was good and we had a fine crop of grafted black walnuts and the best crop we ever had of grafted hickories.

When the walnuts had been picked, hulled, soaked, washed, and dried, they were advertised for sale in two of the local papers at 20 cents per pound, the hickory nuts at $1. The hickory nuts need no washing as they are automatically released from their hulls by nature and merely have to be picked up from the ground.

The great difference in price was for a purpose. The sales showed that nearly as often as we sold a 2-pound or 5-pound package of walnuts, we also sold a pound of hickory nuts of a variety known as Weschcke, a true papershell variety.

The object was to find out whether we could attract customers to the farm and to ascertain whether nuts could be sold at some profitable price. We could have made a profit if we had sold the walnuts at 30 cents per pound, and the hickory nuts still would have made a profit if we had reduced them to 50 cents per pound.

(Continued on next page)

Phix* THE ANSWER TO YOUR SCAB PROBLEM

GET Phix FOR THE BEST in

EFFECTIVENESS
EASE
EFFICIENCY
ECONOMY
CONVENIENCE

Phix is a dry organic mercury fungicide PROVEN in many experiment station tests and in thousands of commercial orchards.

Phix is available from most leading spray chemical suppliers. Insist on Phix!

ORDER Phix from your dealer early—have it ready to really STOP SCAB in your orchard this spring. Don't give scab a chance to get a start—USE Phix

If your supplier does not yet have Phix write, wire, or phone your order to us with your supplier's name.

Write for a descriptive folder.

CHEMLEY PRODUCTS COMPANY
14 East Jackson Blvd., Chicago 4, Ill.

*Trade Mark Registered

you'll BE AHEAD with a
John BEAN
SPEED SPRAYER

SPEED SPRAYER'S CONTROLLED POWER . . .
SAVES YOU TIME
MAKES SPRAYING EASIER
CUTS OPERATING AND MAINTENANCE COSTS

1 UNITIZED CONTROLS — New, exclusive John Bean design combines engine and spray controls with five essential instruments in one, compact, cable-connected remote control box. Mounts on the tractor fender—gives operator finger-tip control and instant check of operating instruments.

2 DEPENDABLE HORSEPOWER — Great, new Chrysler industrial engines are among the best power plants ever developed. They're rugged, easy starting, smooth running — and they drive the power-saving Speed Sprayer pump and fan without excessive engine speed. Economy — in gas and maintenance.

You'll be ahead . . . and stay ahead . . . on labor and materials with a John Bean Speed Sprayer. Take this first step toward better, more profitable fruit growing — ask your John Bean dealer for a Speed Sprayer demonstration.

WRITE FOR CATALOG L-1142

fmc Food Machinery and Chemical Corporation

John BEAN Division of

LANSING 4, MICHIGAN • SAN JOSE, CALIFORNIA

YOU'LL BE AHEAD AND STAY AHEAD WITH JOHN BEAN • • • A SPRAYER FOR EVERY ORCHARD

LETTERS

(*Continued from page* 5)

From what I have ascertained by prices in our retail stores in St. Paul, the black walnuts prepared in such an attractive way might have been priced at 50 cents per pound to the public even though the store buyers had purchased them for 20 or 25 cents per pound. You can imagine what such stores would have asked for the hickory nuts if they had been the only sales representatives.

This experience points to a very favorable element, which is that people can be induced to travel a few miles to orchards and meet the growers. Customer and grower can then get together on a satisfactory price and save money for both parties since the middleman will not cooperate and pays so little to the grower and at the same time doubles or even triples the price to the consumer. Is it not right to assume that he is not playing fair in marketing the producer's products?

This is just an opinion but I am sure that many fruit growers would concur.

St. Paul, Minn. Carl Weschcke
Hazel Hills Nursery Co.

Our Anniversary Issue

Dear Editor:

The December issue is indeed outstanding—a fitting number to commemorate 75 years of service to the fruit growing industry. Our congratulations to all who had a part in its production.

Milwaukee, Wis. R. A. Crosby
Allis-Chalmers Mfg. Co.

Dear Editor:

Just received the 75th anniversary issue. Congratulations! It's a doozie.

College Park, Md. A. F. Vierheller

Dear Editor:

The December issue is a dandy and should make some very interesting reading for growers everywhere.

Urbana, Ill. M. J. Dorsey
National Peach Council

Spray Compatibility

Dear Editor:

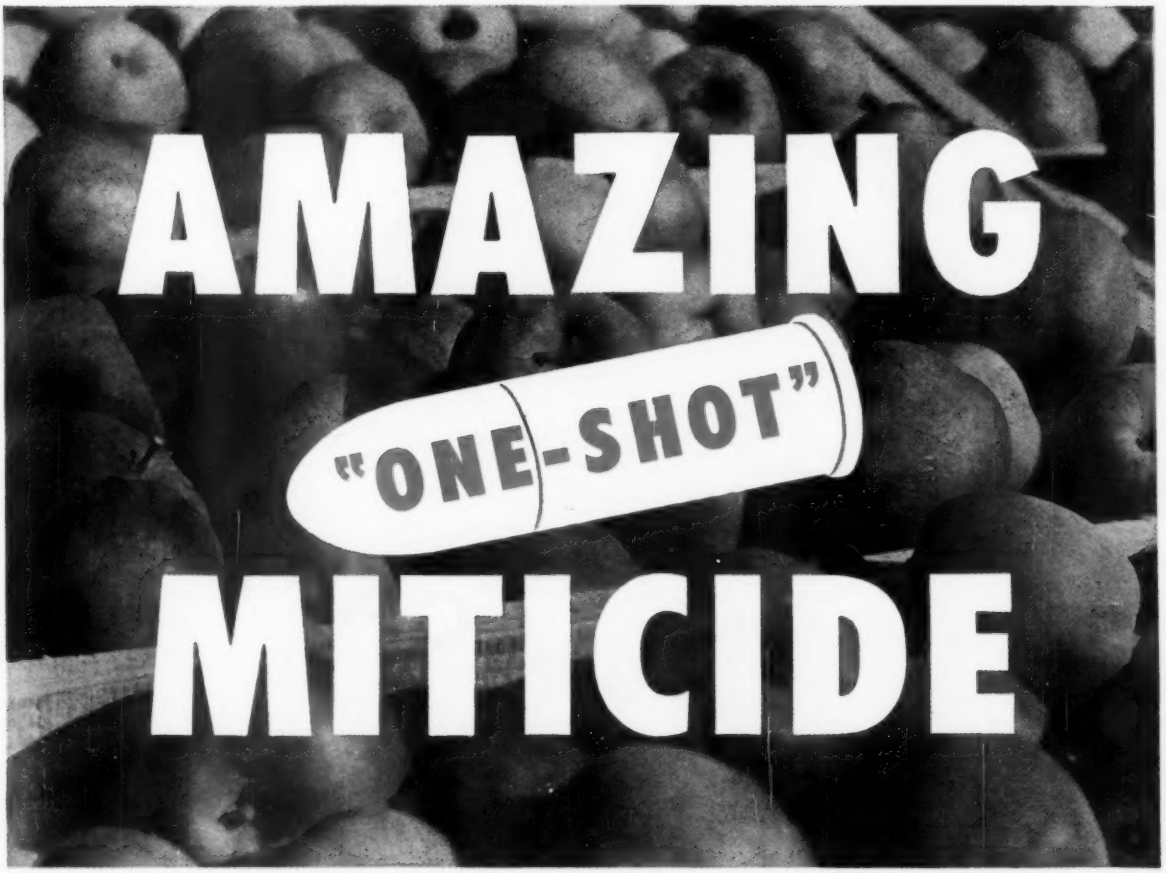
I should like to comment briefly on a question in the AMERICAN FRUIT GROWER Question Box for November, 1955. North Carolina inquires about the combination of ferbam, lead arsenate, and a very weak lime sulfur solution. On the basis of our experience, I would say this is a loaded combination.

Throughout the '30's when lime sulfur and lead arsenate were widely used, it was commonly recognized that more arsenical injury could be anticipated by using lime sulfur at one or two quarts with lead arsenate than when the lime sulfur was held up to normal strength. This small amount of lime sulfur breaks down completely with the small amount of carbon dioxide dissolved in water, and all buffering action is lost.

In addition to this, our experience with lime sulfur and ferbam in combination is that it produces severe stunting of the foliage and considerable dropping of the fruit under some circumstances. Stunting from this combination has been so severe in our plots that recovery was not complete even by the end of the season.

I suppose the moral of all of this is that the spray injury and compatibility problem is far from simple.

Winchester, Va. A. B. Groves
Virginia Agricultural Experiment Station



Orchard® Brand GENITE* EM-923

For Early Mites on Apples! Peaches! Pears! Prunes!

Here's the answer to your early mite problems! Orchard Brand GENITE EM-923 is an amazing early mite spray that gives *control far into summer with a single application!* And by reducing the number of midsummer sprays required, Genite EM-923 lessens the residue problem on fruit.

Some Unusual Features of GENITE EM-923*

- Gives outstanding control of European red mite and clover (almond) mite with single application.
- Will not harm useful insects; virtually non-toxic to bees.
- So effective, control results often extend into the following year.
- Superior control before fruit formation eliminates residue problem of late season sprays.

ORCHARD BRAND SPRAYS & DUSTS

TESTED, PROVED! All of these advantages have been fully proved by testing at Experimental Station orchards in 28 states and three Canadian provinces. Used by commercial growers in California for years.

GOES FAR! Just 1½ pints make 100 gallons of full-strength solution. Recommended use is any time from dormant spray to petal-fall spray. Compatible with most pre-fruit-formation spray materials: generally, no separate miticide spray is necessary.

BE READY . . . Order early from your Orchard Brand Dealer—ask for free folder and spray guide.

GC Allied Chemical

*Reg. U. S. Pat. Off.

GENERAL CHEMICAL DIVISION
ALLIED CHEMICAL & DYE CORPORATION
40 Rector Street, New York 6, N. Y.

The RIGHT product for EVERY Pest Problem

Stauffer Captan 50-W controls a wide range of fungus diseases which cut the profits of the fruit grower.

A Stauffer Captan program means you can count on healthier trees and plants from season to season. Photosynthesis is not hampered by Stauffer Captan, and trees maintain beneficial foliage. Biennial varieties produce better in the off-year.

Fruit is larger – superior in finish and color – plump, firm, juicy and flavorsome. The high run of Fancy and Extra Fancy insures a bigger revenue from the crop – reduces the post-harvest problem of disposing of inferior fruit.

Russeting and cracking on Red Delicious, Baldwin, Jonathan and Stayman Winesap is practically eliminated with Stauffer Captan. It is similarly effective on Golden Delicious and green varieties on which other treatments often fail.

Peaches, pears, strawberries, cherries and other fruits benefit similarly from a Stauffer Captan program.

Stauffer has *everything* for the fruit grower.

In addition to manufacturing Captan and other basic toxicants, Stauffer formulates a complete line of insecticides and fungicides for fruit protection. Seventy years of manufacturing experience and up-to-date Technical Service combine to provide the economical benefits of a Stauffer Protection schedule.

The Stauffer line includes dust and spray formulations of:

- Captan - Parathion - Ovex
- Dieldrin - Malathion - Aramite
- Systox - DDT - BHC - Sulphenone
- "Magnetic 70" Sulfur Paste and other Sulfurs

See your dealer for information.

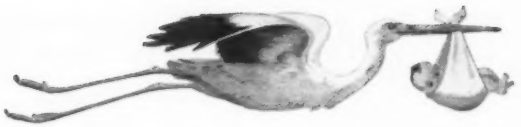
Stauffer CHEMICALS SINCE 1885

STAUFFER CHEMICAL COMPANY

380 Madison Avenue, New York 17, N. Y.
636 California Street, San Francisco, Calif.

Houston • Los Angeles • Omaha
Tampa • Harvey • Weslaco • North Little Rock • North Portland

Stauffer CAPTAN 50-W



The '56 Chevrolet

It looks high priced—but it's the new Chevrolet "Two-Ten" 4-Door Sedan.

For sooner and safer arrivals!

Of course, you don't have to have an urgent errand and a motorcycle escort to make use of Chevrolet's quick and nimble ways. Wherever you go, the going's sweeter and safer in a Chevy.

Power's part of the reason. Chevrolet's horsepower ranges clear up to 205. And these numbers translate into *action* . . . second-saving acceleration for safer passing . . . rapid-fire reflexes that help you avoid trouble before it happens!

True, lots of cars are high powered today, but the difference is in the way Chevrolet *handles* its power. It's rock-steady on the road . . . clings to curves like part of the pavement. That's *stability*—a matter of build and balance that helps make Chevrolet one of the few great road cars!

Highway-test one, soon. Your Chevrolet dealer will be happy to arrange it. . . . Chevrolet Division of General Motors, Detroit 2, Michigan.

THE HOT ONE'S EVEN HOTTER

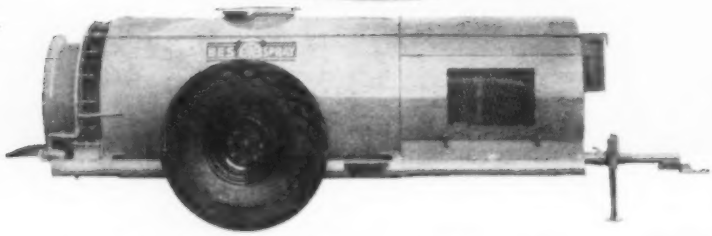
More Air!
faster coverage
at lower costs!

IT'S THE FINEST BES•SPRAY FOR '56 EVER BUILT...

more horsepower power plus
from the new heavy-duty overhead valve engines

bigger fan more air volume at lower speeds

new styling BES•SPRAY looks like the leader it is



6 All-New Models to fit your every spraying need...6 All-New Models that nail down BES•SPRAY'S position as the year-in, year-out leader of Air-Stream sprayers. Before you buy any sprayer, see the 1956 BES•SPRAY!

Model 220.....200 gal. tank.....20 g.p.m.....15,000 cu. ft. min.
Model 350.....300 gal. tank.....50 g.p.m.....30,000 cu. ft. min.
Model 450.....400 gal. tank.....50 g.p.m.....30,000 cu. ft. min.
Model 550.....500 gal. tank.....50 g.p.m.....30,000 cu. ft. min.
Above models with choice of water-cooled or heavy-duty air-cooled engines.

Model 480.....400 gal. tank.....80 g.p.m.....40,000 cu. ft. min.
Model. 580.....500 gal. tank.....80 g.p.m.....40,000 cu. ft. min.
Powered with new Ford industrial heavy-duty, water-cooled overhead valve engine.

BES•SPRAY—Now even more powerful, bigger and faster—to do your every spraying job—to the tops of the tallest trees!

ASK YOUR DEALER FOR A DEMONSTRATION or write for the name of your nearest dealer.

BESLER CORPORATION
4053 HARLAN STREET • EMERYVILLE—OAKLAND 8, CALIFORNIA

CALENDAR OF COMING MEETINGS & EXHIBITS

Feb. 7-9—New Hampshire State Horticultural Society annual meeting, Highway Hotel, Concord. E. J. Rasmussen, Sec'y, Durham.

Feb. 9-10—Idaho State Horticultural Society 61st annual meeting, Hotel Boise, Boise.—Anton S. Horn, Sec'y, Boise.

Feb. 9-11—West Virginia State Horticultural Society 63rd annual convention, Martinsburg.—Carroll R. Miller, Sec'y, Martinsburg.

Feb. 15-16—Manistee and Benzie County Horticultural Society and Berry Growers' Association, Manistee Armory, Manistee, Mich.—Ray S. Anderson, Chief, Mich.

Feb. 15-17—Ohio State Horticultural Society 109th annual meeting, Hotel Cleveland, Cleveland.—C. W. Ellenwood, Sec'y, Wooster.

Feb. 15-17—Seventh Annual Northwest Perishable Loss Prevention Short Course. Registration fee $1. A joint project of Washington State College, The University of Idaho, Oregon State College, and The American Railway Development Association. Short course held on **Feb. 15** in Chinook Hotel, Yakima, Wash., will be repeated **Feb. 17** in Columbia Hotel, Wenatchee, Wash. **Feb. 16**—Tour of packing and storage houses in Yakima and Wenatchee.—T. A. Merrill, Chairman, Dept. of Hort., State College of Washington, Pullman.

Feb. 20-22—National Peach Council annual meeting and Southern Illinois District Horticultural Society meeting, Hotel Cairo, Cairo, Ill.—M. J. Dorsey, Sec'y, 1502 S. Lincoln, Urbana, Ill.

Feb. 28-Mar. 2—Iowa Fruit and Vegetable Schools: Feb. 28 at Davenport; Feb. 29 at Burlington; Mar. 1 and 2 at Council Bluffs.—Glenn Raines, Sec'y, Des Moines.

Mar. 12-16—Tenth National Conference on Handling Perishable Agricultural Commodities, Purdue University, Lafayette, Ind.—N. K. Ellis, Dept. of Horticulture, Lafayette.

Mar. 13-14—Vermont State Horticultural Society annual meeting (place not yet decided).—C. L. Calahan, Sec'y, Burlington.

Mar. 15—North Jersey Fruit Growers' meeting, Far Hills Inn, Somerville.—E. G. Christ, Sec'y, New Jersey State Horticultural Society, New Brunswick.

Apr. 5-7—California Grape and Tree Fruit League annual meeting, Ahwahnee Hotel, Yosemite National Park.—Association headquarters: 717 Market St., San Francisco, Calif.

Apr. 26-27—Shenandoah Apple Blossom Festival, Winchester, Va.

June 11-13—National Apple Institute annual meeting, Dennis Hotel, Atlantic City, N. J.—Truman Nold, Exec. Sec'y, 726 Jackson Place N. W., Washington, D. C.

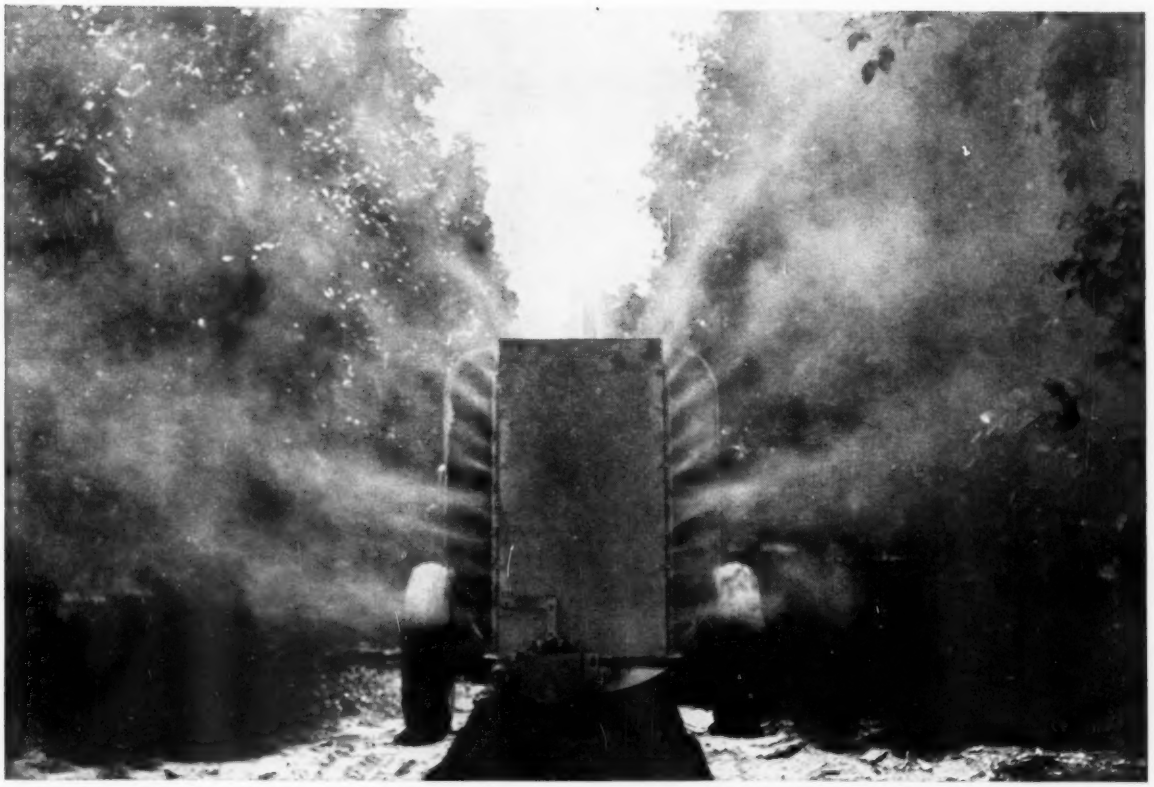
MATCH-LOAN PROGRAM FOR APPLE MOVIE

THE International Apple Association has approved a match-loan program for purchase by the local trade of the film, "Gateway to Health." The film, which emphasizes the role of apples in dental health, has won wide praise by dentists and educators.

At the IAA convention in Detroit last August, a $10,000 purchase program was approved by the board of directors. For every print of the film ordered by the local trade, the IAA will loan another print free of charge. The films must be placed in the circulating film library of the local school system.

The IAA does not contemplate matching prints purchased by apple institutes, apple commissions, dental associations, or the school systems themselves.

For complete provisions of the match-loan program, contact the IAA office at 1302 18th St. N. W., Washington 6, D. C.



Powerful Niagara Liqui-Duster applies dusts or sprays concentrates from either or both sides.

Whether You Dust or Spray—Either Way!

KOLODUST 100 and KOLO 100 (Spray)

give safe, sure control over scab, powdery mildew, brown rot and other diseases

In both Kolodust 100 and Kolo 100 (spray) Niagara scientists have combined the best scab protecting properties of two proven orchard fungicides. These chemicals—fused bentonite sulphur and dichloronaphthoquinone—each in its own right has marked fungicidal value. Compounded together in carefully determined proportions they complement each other's action. Thus they provide you with a double hit to assure the most positive control over scab.

The effectiveness of Niagara Kolo 100 materials has been proved through several seasons of use. You can't buy a better early season fungicide, either from the standpoint of cost or effectiveness. Ask your Niagara field man to chart a money saving, scab protecting program for you now.

Niagara INSECTICIDES, FUNGICIDES, ORCHARD DUSTERS

Niagara Chemical Division
Food Machinery and Chemical Corporation

WHEN YOU BUY Niagara YOU BUY PROTECTION

fmc

*Trade Mark

Middleport, N.Y., Pine Bluff, Ark., Richmond, Calif., Jacksonville, Fla., Tampa, Fla., Pompano, Fla., Wyoming, Ill., New Orleans, La., Ayer, Mass., Harlingen, Tex., Pecos, Tex., Yakima, Wash.
Canadian Associate: NIAGARA BRAND SPRAY CO., LTD., Burlington, Ontario

DOW

Timely answer to pest problems

DN-289 for aphis, cherry case bearer, pear psylla, bud moth, certain scale insects, twig borer, red mite eggs

Right now is the time to plan to get your 1956 apple crop off to a healthy start. Spray your trees with DN-289®, Dow's superior liquid NON-OIL preparation for dormant application. DN-289 is also recommended for dormant use on pears, cherries, plums and pecans—but *not* on peaches.

DN-289 cuts spray costs, and controls more pests than any other single dormant spray material. Your Dow dealer will be glad to give you the latest recommendations for using DN-289 and other reliable Dow orchard chemicals. THE DOW CHEMICAL COMPANY, Midland, Michigan.

DOW

American Fruit Grower
• Fruit for Health •

Prune right and spray thoroughly and you will minimize your pest control problems. The new 300-gallon Airmaster 320 of Friend Manufacturing Company, Inc., Gasport, N.Y., is built low, has adjustable wheels to allow for additional 6-inch clearance.

PRUNE For Good Spray Coverage

Best results with air-blast concentrate spraying are obtained when much thin wood pruning is practiced

By MAURIE SEMEL . . . *Cornell University*

FOR the past five years, insect and disease control, chemical thinning, harvest-drop minimization through the use of plant hormones, and foliar applications of fertilizers have been accomplished successfully using the air-blast concentrate spraying method on fruit trees in New York state.

For the most part, little or no injury to the trees resulted, although occasionally in using chemical compounds for thinning, reducing fruit drop, or fertilization, the effects were unsatisfactory. For example, sections of a tree were over-thinned, whereas other parts of the same tree showed little effect; fruit dropped normally from one section of a tree but resisted picking in another; scorching and loss of foliage sometimes resulted.

In general, these adverse effects may be attributed to the uneven distribution of the spray chemicals within the tree. The type of sprayer used, speed of travel, wind velocity, spray formulation, and the size, shape and density of the tree sprayed are a few factors partly responsible for this variation in deposit. Of these factors, tree size and density were found to be of considerable importance in a series of insect-control investigations carried out in New York state during the past few years.

From information accrued in initial studies of deposits, it was determined that four or five times as much of the spray fluid must be directed to the uppermost sector of a tree in order to realize an even distribution throughout the tree.

Unpruned Cortland apple tree with too much fine wood which keeps spray from reaching tree top.

However, even after making this adjustment, insecticide deposits continued to be highest in the lower sector. This condition existed, likewise, in the case of dilute sprays applied with a hand-gun to the point of run-off. This was especially true when the sprayed trees were high (25 feet or more) and densely foliated. When the sprayed trees were of moderate size (20 feet in height) and open, the difference was not as pronounced.

The same tree after only one scaffold branch and much fine wood were removed. Tree top can now can be easily sprayed with air-blast sprayer.

Perhaps a few figures would serve to illustrate this point. When comparisons were made of foliage deposits in the top and bottom sectors of the dense type of tree, approximately 80 per cent more material was found deposited in the lower region of trees treated with a hand-gun. The difference was approximately doubled where air-blast concentrates were used. When similar types of applications were made under more favorable conditions of tree growth, these differences diminished to 18 per cent and 10 per cent

(*Continued on page 32*)

The Ever-Changing FRUIT DISEASE PATTERN

The year 1955 with its unusual weather conditions added some variations which will affect this year's control program

By JOHN C. DUNEGAN . . . *U. S. Department of Agriculture*

THE successful control of pear blight, culminating the experimental work of several seasons with antibiotic materials, was an outstanding news item for fruit growers in 1954. During the past season neither antibiotics nor new fungicides played leading roles.

Instead, eastern fruit growers in 1955 were plagued by unfavorable environmental conditions. An early-spring freeze destroyed the peach crop and much of the fruit crops from Virginia southward. In the late summer two hurricanes swept over the Atlantic seaboard bringing high winds and torrential rains. Extensive damage to fruit crops was only a small part of the enormous toll caused by these storms.

Apple Mildew — Apple powdery mildew was probably the most serious fruit disease problem of the current season. This fungus disease was prevalent in many blocks of Rome Beauty, Jonathan, and Stayman Winesap apple trees causing extensive damage to the leaves. It was also found on Baldwin, Cortland, Gravenstein, Monroe, and Yellow Transparent apple trees.

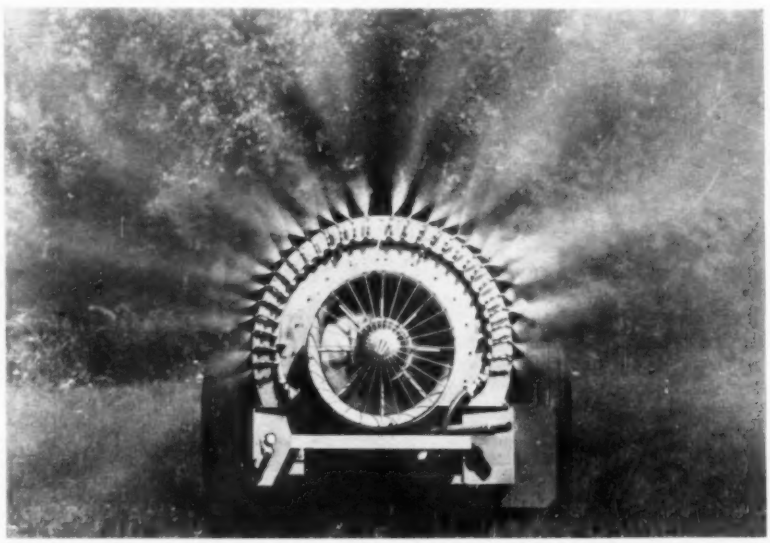
It is generally agreed that the use of organic fungicides instead of sulfur has allowed the apple mildew fungus to increase markedly in the past few years. Little satisfaction is to be gained from this explanation, however, for it places the fruit grower in a dilemma. Will it be better to return to a sulfur program, in an effort to control the apple mildew fungus, and risk sulfur injury to the leaves and fruit, or should the organic fungicide program be continued at the risk of ever-increasing damage from the apple mildew fungus?

Since continued attacks by the apple mildew fungus will destroy the leaves and reduce the crop for the following season in much the way sulfur did in the past, the current trend in this problem is to return to a limited use of sulfur sprays especially on Rome Beauty and Jonathan apple trees.

A relatively new organic compound, dinitro (capryl) phenyl crotonate sold under the trade names of Karathane or Mildex has given satisfactory results in some experiments. It is rather effective in retarding the spread of the apple mildew fungus during the growing season, but is more expensive than sulfur and has caused some fruit russet and leaf injury when used early in the season.

Individual growers should follow the recommendations of their state agricultural experiment station regarding the materials to be used in 1956.

Fire Blight—Fire blight was not nearly as destructive to apple and pear trees in 1955 as it was in the previous season. However, there were isolated outbreaks in the East that caused serious damage to apple trees. Satisfactory control of the blossom blight phase of the disease on apple trees was obtained by the application of sprays of streptomycin or the mixture of streptomycin and oxytetracycline (Terramycin), during the blossom period. However, twig blight appeared later on these trees and some growers were inclined to feel that the antibiotic sprays were not satisfactory.



"Hurricane action" in orchard pest control is claimed for the new 2-fan Hurricane sprayer of Hardie Mfg. Co., Hudson, Mich. Available in three sizes, it can be used for concentrate or dilute sprays.

The apple mildew fungus produces a mass of fungus filaments on the surface of the leaves, and sprays used for apple mildew control should contain a wetting agent to insure penetration through this mat of filaments. Most of the commercial sulfur formulations contain a wetting agent and it is essential such an agent be added to Karathane or Mildex for maximum results.

Experimental work for the control of apple mildew is being carried on in a number of eastern states.

The black rot fungus invades apple twigs that have been killed by the fire blight organism. Growers therefore should take particular care to remove all these dead twigs dur-

(*Continued on page 37*)

The Battle Against ORCHARD INSECTS

The 1955 season in review . . . and what to expect of insect activity and spray materials in 1956. Special attention to spray tolerances is urged

By HOWARD BAKER, *U. S. Department of Agriculture*

THERE were no serious outbreaks of insects and mites in orchards during 1955, and overwintering populations of the important pests are such that no widespread, serious outbreaks are anticipated in 1956.

As in most other recent years, insect and mite activity and development were controlled very largely by weather conditions and the effectiveness of the spray programs in use. In many areas a late spring retarded early-season development, particularly of the codling moth and mites, and pest control was easier than normal throughout the season. Spray programs too were highly satisfactory, and most growers who sprayed well and on schedule had little trouble in controlling the pests in their orchards.

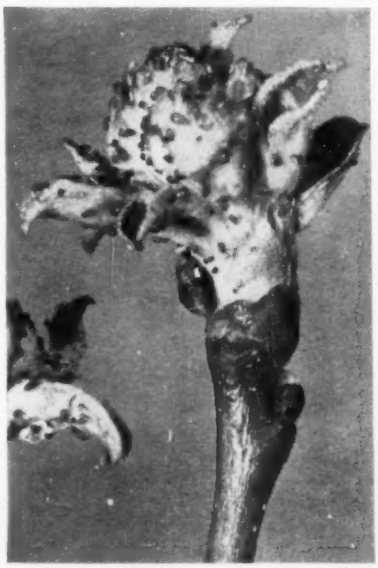
Despite the generally good insect control in 1955, some growers had difficulty, and in some areas populations of insects and mites reached injurious levels despite the best efforts to combat them. The codling moth and mites remained the most serious pests.

The red-banded leaf roller gave indications of a comeback in the East and Midwest, where it has not been a problem pest for two or three years.

In the Southeast, where the parathion spray program was discontinued on stone fruits because of a total crop loss due to the March freeze, the oriental fruit moth caused serious twig injury to peaches, and scale insects and populations of peach tree borers increased.

The pear psylla extended its range down the Pacific Coast into commercial pear orchards in California. The unspotted tentiform leaf miner, long a pest of little importance, appeared in damaging numbers in Maryland, Pennsylvania, and Delaware, as well as in Virginia and West Virginia, states in which it has caused damage in other recent years. Aphids, too, were a problem in spots.

The most important concern of fruit growers in 1955 was not the codling moth, mites, or even the weather. It was the tolerances announced for the insecticides they use and how to comply with them.



Aphids were troublesome in some areas in 1955.

SPRAY TOLERANCES

Under the terms of the Food, Drug and Cosmetic Act and Public Law 518, commonly referred to as the Miller Bill, on and after July 22, 1955, all uses of insecticides must be covered by a tolerance, exempted from one, or be such that no residue will remain at harvest.

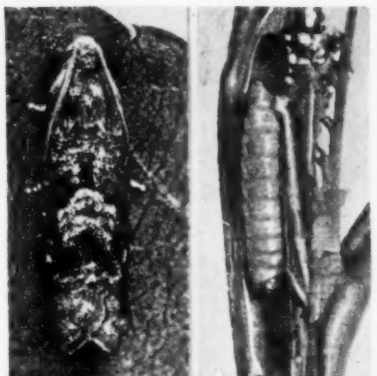
Since all insecticides shipped interstate must bear a label approved by the USDA, growers are urged to read the label and follow its instructions. The label not only gives information on the composition of the insecticide but also indicates approved uses and recommended precautions.—*The Author.*

Much of the research during 1955 was influenced by the need for spray programs that can be depended upon to give control of orchard pests without leaving excessive residues at harvest. Special attention was given to suppressing populations of injurious species early in the season and to accumulating residue data to support recommendations. The codling moth and mites received major attention, the codling moth because of the increasing indication that all strains are not equally susceptible to DDT, and mites because the important species are becoming resistant to parathion and other organic phosphorus insecticides. Many new materials were evaluated, also, particularly for control of mites.

Experiments at the USDA laboratory at Vincennes, Ind., demonstrated that not all of the 16 strains of codling

(*Continued on page* 35)

The codling moth claims attention because of resistance of some strains to DDT. Materials to supplement or replace DDT hold promise of control without exceeding tolerance limitations.



The oriental fruit moth staged a comeback in southeastern peach orchards in 1955 because of omission of parathion spray due to crop loss.

Keep Up-To-Date on FIRE BLIGHT CONTROL

Antibiotics continue to play an important part in holding this disease of apples and pears in check

By ELDON S. BANTA

Sam Patterson examines blossoms on Bartlett pear trees in his orchard at Chesterland, Ohio. Petals were about off on May 10 when photo was taken. This is time to apply third application of streptomycin for control of pear blight.

Use of copper sprays to control fire blight of pears often results in severe russeting, as shown here. So far antibiotic sprays have caused no injury to fruit and have given excellent control when used according to recommendations.

ANOTHER year's experience with antibiotic sprays adds emphasis to their effectiveness in controlling fire blight of apples and pears. In no case where antibiotic sprays were used according to recommendations did they prove valueless. The degree of blight control was in proportion to concentration of the material used, the number and timing of applications, and temperature and other weather factors at time of application.

In Ohio tests last year Dr. H. F. Winter reported less effectiveness with streptomycin than in the previous seasons, but control was still good. Low temperatures, between 40° and 60°, during apple bloom period may have accounted for this. He reports that at temperatures below 70° streptomycin is absorbed into the tree at lower rates, and its effectiveness depends upon the absorption of the antibiotic into the tree. In a way it acts as a systemic. Best results can be expected if applications are made when temperatures are above 70°, but this is not always possible.

Experimenters this year tried streptomycin sprays with certain materials added to them, such as copper, glycerin, and growth regulators, to test their effectiveness on blight control. Preliminary tests show that addition of some of these materials may reduce the concentration of the antibiotic necessary for good control of blight. This would reduce cost of applications, one of the limiting factors in extensive use of antibiotics at present.

In Missouri tests, Dr. Robert N. Goodman reports another limiting factor in antibiotic effectiveness. During the past season he and his workers noticed that twig blight which occurred in midseason was separate and distinct from the blossom and twig blight that developed during and just after the bloom period on apples. These late or midseason infections, Goodman believes, are started from inoculum in hold-over cankers on limbs or branches. Antibiotic sprays were not effective against these late infections. Thus it is important, particularly with pears, to cut out all blight cankers in the orchard during the winter pruning operation.

Streptomycin can be used in spray mixtures of fungicides and insecticides, but its effectiveness against blight is sometimes reduced. Dr. E. G. Sharvelle of Purdue University reports that streptomycin should not be used in any mixtures involving maneb, glyodin, benzene hexachloride, chlordane, lindane, and such fertilizers as Vigoro. It is safe to use streptomycin with sulfur, captan, zineb, lime sulfur, copper, ferbam, DDT, parathion, lead arsenate, aldrin and NuGreen. However, best results are always obtained when the antibiotic is applied alone.

In general, blight of apple is being controlled with three streptomycin (or Agri-mycin) sprays applied during bloom. In Missouri Dr. Goodman suggests growers put the first spray on at full pink, using 50 parts per million (ppm) concentration. The second one goes on five days later with the same concentration. The third will come five days after the second and the concentration can be cut in half, to 25 ppm of streptomycin. Occasionally a fourth application may be necessary if bloom period is exceptionally long and weather conditions favor heavy blight infection.

In Michigan Prof. E. J. Klos is suggesting that growers use a concentration of 100 ppm streptomycin this

(*Continued on page 47*)

A Guide To APPLE SCAB CONTROL

Early-season high-concentration spray applications with air-blast sprayers will minimize scab infection, reduce control cost

By A. B. BURRELL
Cornell University

DESPITE a half century of experimentation, apple scab is still a major problem in all humid orchard areas. More applications are being made for its control than for any other apple disease or insect. More scab sprays are being applied than two decades ago. This sounds as though we have not only failed to make progress but have even lost ground. However, this is not true; important progress has been made.

Growers are getting better control than ever before and doing it with fungicides that permit higher yields, sometimes 50 to 100 per cent higher than with old-fashioned fungicides. This increased yield means a lower cost per bushel. In addition, with modern fungicides apples are smoother, brighter, and better-keeping. The cost of applying sprays has been reduced through improvement of machinery, and the job can be done faster.

With a wide choice of fungicides, it pays the grower to know the characteristics of each and the varieties and situations for which each is suitable. The choice of a fungicide depends not alone on its efficacy against scab, but also on its safety to leaves and fruits, its compatibility with insecticides and miticides, and its value against other fungus diseases. It may be necessary that the scab application also prevent powdery mildew, cedar-apple rusts, blotch, black-rot or other rots, sooty blotch, etc. Cost must be considered in the light of the job the fungicide will do. These are such local problems that only a few guideposts can be erected in a short article.

Two terms are used in classifying fungicides; fruit growers have found it profitable to understand them. The terms are "protectant" and "eradicant."

A "protectant" will prevent scab if new leaf surface is covered before each scab rain or during the wetting period, up to the number of hours necessary for the fungus to become established in the leaf. The critical feature is the length of time the young leaves on the tree remain wet. A short rain at nightfall may keep leaves wet 12 or more hours. Your county agent can supply you with a chart showing minimum period of wetting that permits scab infection at each temperature. It may be as short as eight hours at 68° F.

The term "eradicant" has two common meanings. It refers to a fungicide that will "burn out" scab spots after they can be seen. It also is used for a material that may be applied soon after a scab rain and prevent the appearance of scab spots.

Let's consider protectants. The commonest are paste and dry wettable sulfurs, ferbam, glyodin, and captan. Three new protectants that may be offered for apples next year are thiram (under the name Thylate) and two Vancides. These new fungicides have some chemical similarity to ferbam, but have somewhat different orchard performance records.

Sulfur is our cheapest protectant and is especially desirable where powdery mildew is a problem. On most varieties it is relatively safe up to the petal fall stage. Sulfur residue can severely injure leaves and fruits when the temperature is above 90° F. even if it was applied a week or two earlier. Ferbam is very effective against cedar-apple rusts, hence

(*Continued on page* 40)

Speed in spray coverage is vitally important in scab control. It takes one man 12 to 15 minutes to spray an acre of orchard with concentrates and a modern air-blast sprayer, such as the new Orchard Spra-Blast Iron Age Model 500 of The Oliver Corporation, 400 W. Madison St., Chicago 6, Ill. This sprayer can be equipped with a Diesel-type engine.

With this old-fashioned spray method it took five men 20 minutes to spray an acre of orchard in summer.

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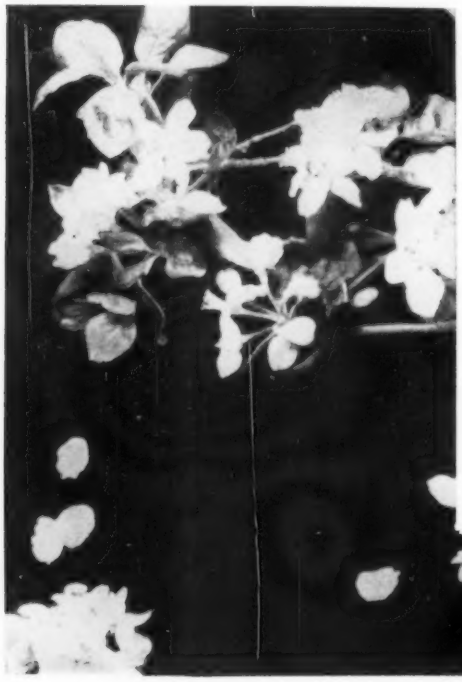
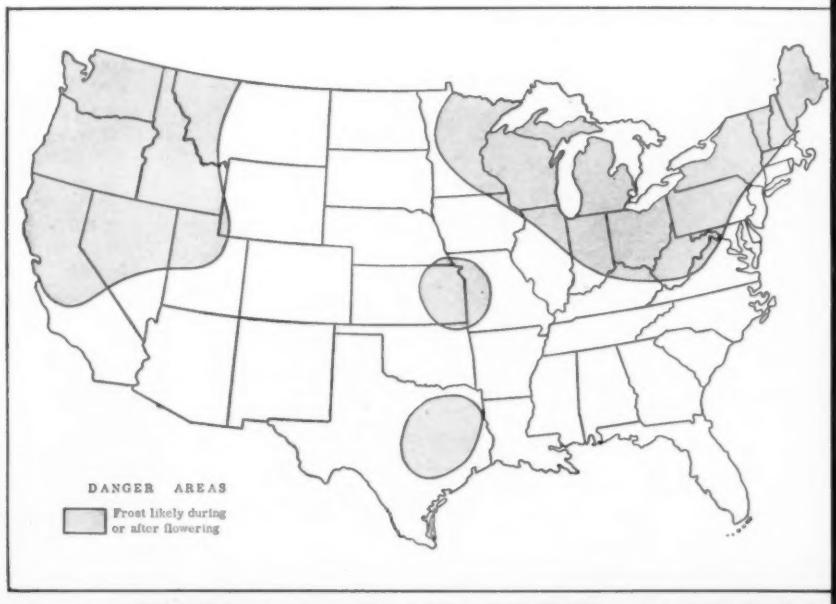
SPRING . . . The Season of

Critical areas that may be hit by frosts this spring include Far West, Great Plains, Great Lakes Region and Northeast

By IRVING P. KRICK, *Meteorological Consultant*

IT is again time for the annual battle of frost and fruit. And from all indications it should shape up as a major encounter. Smudge pots, wind machines, and a galaxy of other devices will earn their keep in many fruit districts this spring. We are not expecting anything resembling the infamous freeze of last March, but several areas are earmarked for trouble.



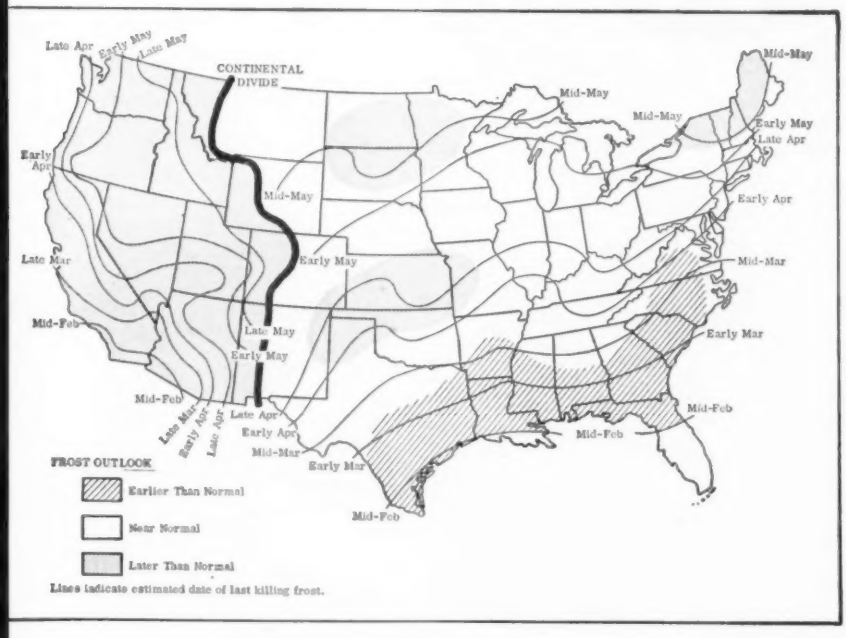


The general spring weather outlook calls for relatively cold weather in the West and seasonal to above seasonal temperatures in the East. Periodic outbreaks of cold air, however, will penetrate most regions of the country. Except for possibly Florida and south Texas, no severe drought is anticipated. Heavy precipitation will be confined to the Ohio and middle Mississippi valleys.

The cool, and ofttimes cold, spring months in the West will retard swelling and opening of fruit buds. In the South, an unusually mild February will advance development. Occasional chilly weather in March, however, should act as a partial brake to prevent abnormally early flowering. Mild spring weather in the middle and north Atlantic states will be a real inducement to early opening of buds. In the Midwest, although March will be relatively cold, above normal temperatures in February and April will force buds open during the normal flowering period, possibly a little earlier.

Virtually everywhere west of the Rockies, the last killing frost will be later than usual. In the desert valleys of the Southwest, no killing frosts are expected after mid-February. For most of California, the last killing frost should occur during the last week of March or the first week of April. Western Washington and Oregon will experience frosts up to the last week of April. In the Rogue River Valley and most of the Intermountain region, last killing frosts are likely during the first week or

# of FROSTS



GREAT PLAINS—Late frosts are expected to catch fruit trees in bloom in eastern Kansas, western Missouri, and northeastern Oklahoma. Early March frosts teaming up with unusually early development could spell injury to Texas peaches.

GREAT LAKES REGION—Relatively early development will place fruit in a susceptible position for at least local injury, with frosts expected to occur at normal or later dates. Unseasonably cold weather is unlikely.

NORTHEAST—Early flowering will give rise to potentially serious frost injury. Flowers or early-set fruit are expected to be caught by late April frosts in the Appalachian region and by early May, frosts in New York and New England.

The realization of frost, of course, does not in itself imply serious loss. As every fruit grower knows, the timing of the frost relative to the stage of bud development is important. Of particular significance is the intensity of frosts or freezes. Unusually low temperatures prior to flowering are often responsible for greatest injury. This season the Pacific Northwest is most likely to experience unusually low temperatures late in the season—a factor almost becoming habit. THE END

FROST-CONTROL PRACTICE

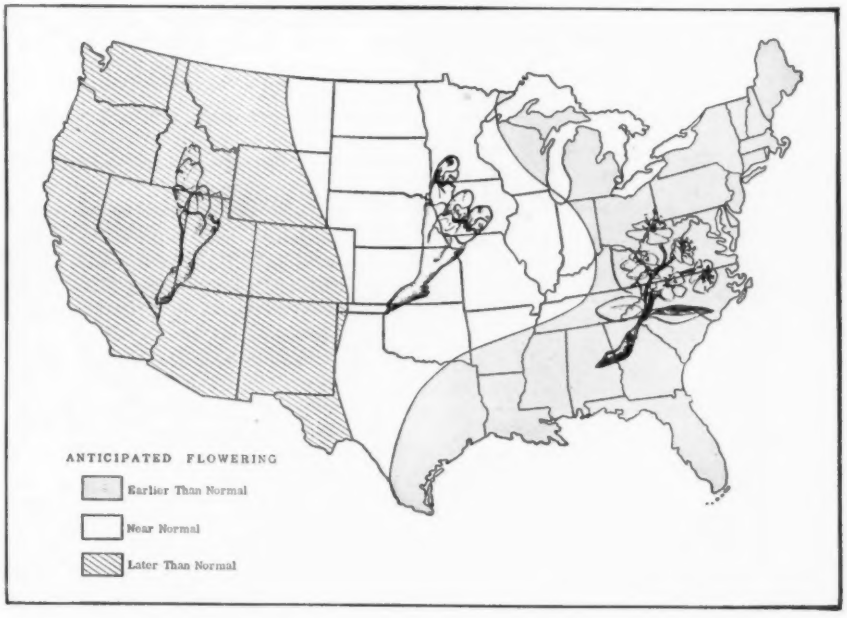
A comprehensive report on methods used in fruit areas throughout the country to combat frost has been prepared by J. D. Clendenin of the U.S. Bureau of Mines. It covers the use and cost of the various heating methods (oil and solid fuel heaters, including the radiant type), wind machines, and sprinkling. Since it was prepared for the purpose of determining the prospective market for anthracite coal in the heating of orchards, the report, entitled, "Frost-Control Practices and the Prospective Use of Anthracite," thoroughly analyzes all frost control methods. Numerous illustrations and many statistics make it an invaluable reference.

Interested readers can obtain a copy of the report, at no cost, by addressing their request to: Publications Distribution Section, U.S. Bureau of Mines, 4800 Forbes St., Pittsburgh 13, Pa.

10 days of May. In the higher valleys, especially in western Montana and north-central Washington, late May will be more realistic.

Last frosts will occur early in most of the South and Southeast. All danger should be past in the peach districts by March 20. Frosts in the Midwest will persist to about April 1 in southern portions and about the last week of April in the north. In the Applachian region, the last killing frost is expected about April 1 in Virginia and about April 25 in West Virginia, western Maryland, and Pennsylvania. In New York and New England, last frosts will be relatively late, about the first week of May.

The critical areas appear to be:



FAR WEST—A very late season will be a welcome buffer against inevitable late frosts. It is a question of how late flowering will occur. Regardless, some frost damage is likely, especially in central Washington. Watch out for unusual cold late in the season.

State NEWS

- **Growers in Northwest Assess November Freeze Damage**
- **Washington Peach Growers Form Bargaining Association**

Peach Bargaining Association

WASHINGTON—Peach growers in this state have joined the increasing number of fruit growers who feel that the best way to deal with canners is through a strong growers' association.

Nearly 75 per cent of the state's canning peach tonnage has been signed to the new Washington Freestone Peach Association. Membership at the end of November represented about 17,150 tons of peaches, of which 11,840 tons were canning peaches, according to Cecil Clark, Wapato, chairman of the organizing committee.

As state approval of the new organization appeared definite, Clark commented, "It now appears a certainty that Washington peach growers will have a bargaining association working for them in 1956."

Horticulturist Dies

NORTH DAKOTA—Dr. Joseph H. Schultz, chairman of the department of horticulture at North Dakota Agricultural College, died December 17 at Fargo. He was 41 years of age.

Not in the best of health for several years, Dr. Schultz died of pneumonia complicated by a heart condition. He is survived by his wife, Imogene, and five children.

Dr. Schultz

Dr. Schultz was born on a farm in North Dakota and did three years of undergraduate work at North Dakota Agricultural College. He followed Dr. Yeager to Michigan State College, where he received his bachelor's and master's degrees in horticulture. He earned his Ph.D. at Washington State College.

He was a research worker at the Prosser Irrigated Research Station in Washington until 1948, when he was appointed to the post which he held until his death.

Dr. Schultz was treasurer and librarian of the Great Plains Region, American Society for Horticultural Sciences. He was intensely interested in the work of the North Dakota Horticultural Society, and occasionally contributed items to this "State News" column.—*Harry A. Graves, Sec'y, Fargo.*

Increase Strawberry Acreage

KENTUCKY—A few thousand new acres of strawberries will be planted this spring. We will have about 8 million Kentucky-grown, virus-free strawberry plants available for March and April planting. The new Pocahontas variety looks good, and a few hundred acres will be planted to it.—*W. W. Magill, Sec'y, Lexington.*

Spatz Wins Trophy

OREGON—More than 1,200 growers at the 70th annual banquet of the Oregon State Horticultural Society held early in December in Corvallis heard Ward Spatz, Medford pear grower, named winner of the Hartman trophy for outstanding service to horticulture. Spatz is a past president.

The Oregon-Washington strawberry bowl, presented by the National Plant Food Institute, was awarded to Oregon for having the most growers qualify for Five-Ton club membership in 1955. Oregon had 90 Five-Ton Club growers this year compared to nine for Washington.

Gordon Walker, of Independence, was elected president of the society. Assisting Walker for the coming year will be Ross Hukari, Hood River, first vice-president; Orville Hamilton, Central Point, second vice-president, and Walter Leth, Monmouth, third vice-president.

Retained as secretary-treasurer is C. A. Rawlings of Corvallis, while trustees are C. King Benton, Jr., Hood River; Ross Clark, Salem; Glen Schaeffer, Boring; David Lowery, Medford, and Harold J. Bushue, outgoing president, Gresham.—*Harold and Lillie Larsen.*

Ice Storm

MARYLAND—After a 30-day drought, Maryland was dealt an ice storm with three-day intermittent rains. Fruit buds look good, and if the enthusiasm and good intentions to do a top job of culture, spraying, and selling carry through the season, there should be no "farm problem" in the Maryland fruit industry. The horticultural society meetings were the largest and liveliest in many years.—*A. F. Vierheller, Sec'y, College Park.*

Killed in Accident

FLORIDA—Perry E. Murray, president of Florida Citrus Mutual, was killed early in December in an automobile accident near his home at Frostproof. He was a big grower and member of the state legislature.—*J. Francis Cooper, Agr'l Editor, Gainesville.*

(Continued on page 50)

FRUIT PEST HANDBOOK

(FORTY-NINTH OF A SERIES)

RASPBERRY ROOT BORER and RASPBERRY CANE MAGGOT

THE raspberry root borer and raspberry cane maggot are two of the most serious pests that attack the canes of raspberries, loganberries, blackberries, and dewberries.

Injury by the root borer is manifested by a sickly appearance of the plants and by reduced fruit production. Sometimes the infested canes die. The roots of borer-infested plants are often severely tunneled by the feeding of the borer and injured canes may break over.

Injury by the cane maggot can usually be identified by the drooping of infested canes in a "limberneck" fashion. At the point where the maggot-injured cane bends over, a bluish ring can generally be seen. This is the result of the maggot girdling the cane. The maggots feed in the pith of the canes. This injury causes a reduction in the crop and sometimes the death of infested plants.

The raspberry cane borer is widely distributed in the United States and Canada. It is especially prevalent in some localities of the northeastern and south central states and in the Pacific Northwest and California. The parent of this insect is a brownish-black, clear-winged, wasp-like moth with a wing expanse of 1 inch to 1¼ inches. There are four bright yellow bands across the abdomen. The destructive borers are about an inch long with a white body and a brown head.

The raspberry cane maggot occurs in the western, northern, and north central parts of the United States and in Canada. The adults of this insect are brown flies, half the size of an ordinary house-fly, with a humped back. The maggots, or destructive stage of the insect, are white, footless, and about ½ inch long when fully grown.

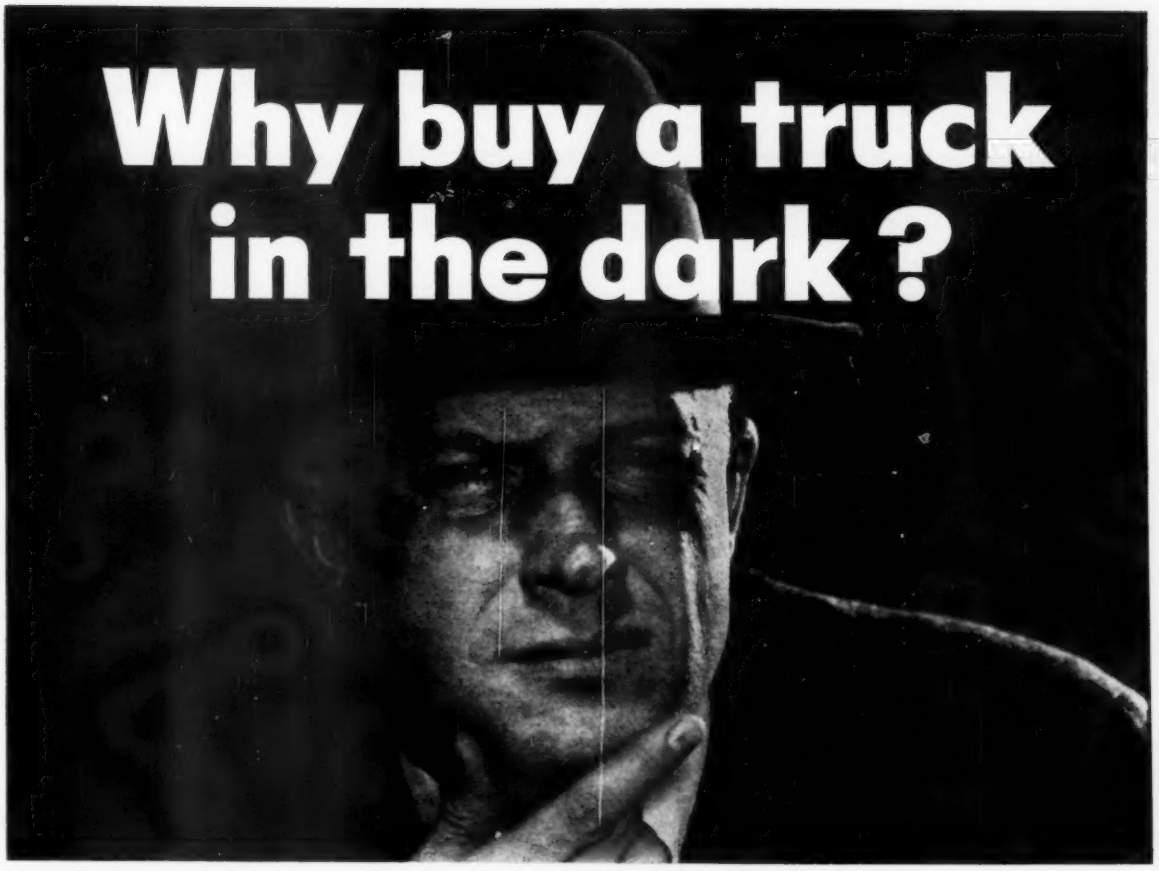
***Control.* New Jersey workers report that timely use of oil sprays will control the raspberry root borer. The spray recommended is a highly refined white oil emulsion**

(Continued on page 46)

Larva of raspberry root borer in injured crown of raspberry plant. Photo courtesy Entomology Dept., N.Y.S. Agr. Exp. Sta.

Typical drooping of raspberry canes resulting from cane maggot injury. Photo courtesy Entomology Dept., State College of Wash.

Why buy a truck in the dark?



If you buy a new truck after looking at only one make, it's like making a deal in the dark. A smarter way to buy is to *"spotlight" real truck value*—weigh and compare competitive claims with these Dodge truck facts:

Most standard V-8 horsepower of all leading makes—½-ton through 3½-ton range. You'll get faster trips—more work done.

Shortest turning radius. You'll get around more easily, in town or on the farm.

Biggest cabs, biggest wrap-around windshield. You'll enjoy roomier comfort, safer vision.

Highest payload capacities . . . pick-ups providing up to 22% more payload than others. You'll haul bigger, more profitable loads.

Prices down with the lowest. Comparative facts show that, feature for feature and dollar for dollar, the real value is Dodge.

Next truck you buy, don't deal in the dark. See Dodge before you buy.

"We figure our Dodge Dealer's deal has saved us nearly a hundred dollars in just a few months—our Dodge costs so much less to operate than any other truck we have ever owned"

R. F. Peterson, Route 3, Bradford, Ill.

GET YOUR DODGE DEALER'S DEAL BEFORE YOU DECIDE

DODGE Job-Rated **TRUCKS** WITH THE *FORWARD* LOOK

Once Again the LEADER!!

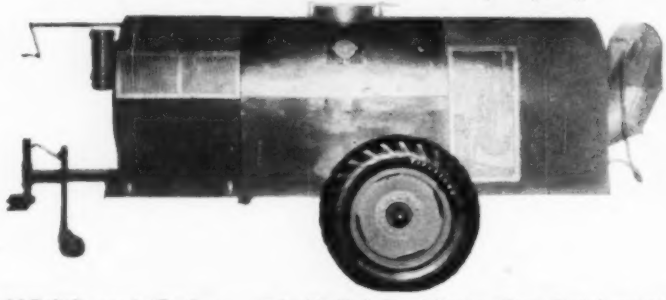
IN 1956 MODEL SPRAYERS and DUSTERS FOR Dilute-Semi-Concentrate or Concentrate Spraying

Two New Models—100 and 200 Gallon

Both with Stainless Steel Tanks at **NO** Extra Cost

End Your Tank Worries Forever

200 Gal. Orchard and Row Crop Sprayer



36 H.P. Wisconsin Engine . . . 5 to 30 Gal. Per Minute. Cast Stainless Nylon Roller Pump. Axle Adjustable for Both Height and Wheel Width. One Man Operation—All Controls Within Reach of Tractor Operator. High Velocity Air Output to Penetrate the Heaviest Foliage.

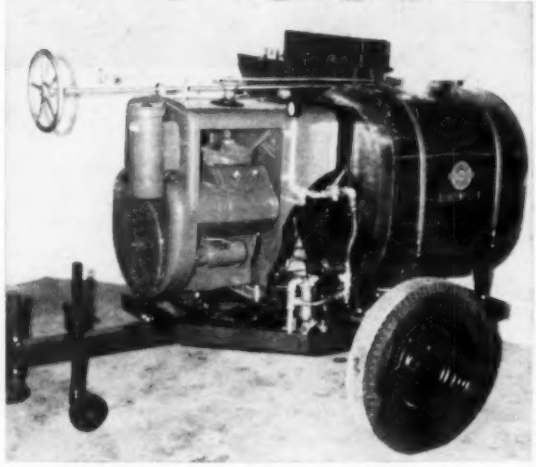
100 Gal. COMBINATION SPRAYER and DUSTER

One Unit Does
EVERYTHING

SPRAYS
Dilute
Semi-Concentrates
High Concentrates

DUSTS
Micronized
Chemicals
Regular Dusts
Pellet Insecticides
or Fertilizers

CHOICE OF
Diaphragm or
Nylon Roller Pump



All Models Have the Famous "Buffalo Turbine" Blower
Engineered To Give Complete and Uniform Coverage with "Turbulent" Air

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Send For New 1956 Brochure and Literature

A Few Choice Territories Open. Dealer - Distributor Inquiries Invited.

THE QUESTION BOX

Don't be perplexed! Send us your questions—no matter how big or small. A three-cent stamp will bring you an early reply. Address: The Question Box, AMERICAN FRUIT GROWER, Willoughby, Ohio.

PEACH TREE FERTILIZATION

I would like to have the names of bulletins or other literature on fertilization of peach trees. —*Oregon.*

The most recent review on fertilization of peach trees is given in the book *Fruit Nutrition*, edited by Norman Childers. You can obtain this book by writing to Book Department, AMERICAN FRUIT GROWER, Willoughby, Ohio.

GROWTH REGULATORS

How can I eliminate undesirable fruits from unsprayed trees where they will cause a fall cleanup problem?—*Pennsylvania*

Undesirable fruits often can be prevented by growth regulator sprays. One-half to one ounce of sodium naphthalene acetate to 100 gallons of water sprayed at full bloom is recommended. Fruits have been eliminated completely with this treatment without injury to the plants. Other formulations such as naphthaleneacetic acid, naphthalene acetamide, and naphthylphthalamic acid are also effective in eliminating fruit.

BUDDING TREES

When budding apple or peach trees should the cambium wood just back or under the buds be left in place or removed?—*West Virginia*

By all means leave the cambium layer on the bud when budding peach or apple trees. It is the cambium layer which when brought in contact with the cambium layer of the stock grows together and makes the graft complete.

CALCIUM ARSENATE

Can calcium arsenate be used in place of arsenate of lead?—*New York*

There is a real difference between calcium arsenate and lead arsenate or arsenate of lead. Calcium arsenate cannot be used safely on apples, peaches, beans, and some other crops because of its burning effect on the foliage and fruit. The major use of calcium arsenate is on cotton.

STRAWBERRY MULCHER

I read in AMERICAN FRUIT GROWER of a strawberry mulcher with adjustable thickness spread. Could you tell me the name of the manufacturer?—*Michigan.*

The manufacturer is Friday Tractor Company, Hartford, Mich.

SUN SCALD PROTECTION

Where can I obtain sun scald protective paint for tree trunks?—*Kansas.*

Sun scald is one of the worst Kansas fruit tree problems. Whitewash brushed on the trees is still fairly satisfactory. Leaving branches on the southwest side of the trunk lower to the ground will shade the trunk and is better than whitewash many growers feel.

MOOERS PEAR

What are the qualifications of the Mooers pear?—*North Carolina*

The Mooers pear has attracted attention as a late fall and winter variety resistant to fire blight. The tree is upright in growth habits, sturdy, and very healthy. It should be especially valuable in locations where leaf spots are very serious. The crop is harvested in late September and may be ripened from October into December, depending on the method of handling. Fruit is large, golden russet color, and attractive. Flesh is crisp, subacid, and good in quality. It is a good canning variety.

now spray away FIRE BLIGHT

with Agri-mycin*100

This loss can now be prevented. Photo shows severe fire blight infection to check tree purposely left *unsprayed*. Big loss of current crop—much bigger loss in future yield due to permanent injury to tree, loss of fruit-bearing wood.

Agri-mycin-sprayed tree in same orchard shows complete control of fire blight. Heavy foliage, heavy yield of top-quality fruit with no russeting as is often caused by copper sprays.

Healthier, blight-free, fruit-producing stems mean more premium fruit... more money at harvest

The effectiveness of Agri-mycin as a control for fire blight has been thoroughly proved by the U.S.D.A., by State Universities, experiment stations, and large commercial growers throughout the United States and Canada.

Agri-mycin protects your young trees against fire blight. Saves valuable fruit-producing wood from excessive pruning due to disease. Protects susceptible blossoms and twigs from bacterial invasion in trees of all ages. Agri-mycin cost for a complete protection program (2 bloom and one cover spray) averages as little as 45¢ a tree.

Agri-mycin is the only antibiotic spray material containing both streptomycin and Terramycin®. Terramycin increases the effectiveness of streptomycin by synergistic action and helps give your orchard more *lasting* protection against streptomycin-resistant strains of the fire blight organism (Erwinia Amylovora).

Blighted apple trees had been yielding only 2 bushels per tree compared to orchard average of 6.6 bushels. After spraying with Agri-mycin yield jumped to 9 bu. per tree. Yield increased 450% over blight years, 30% over orchard average.
COBDEN, ILLINOIS

Agri-mycin gave 95% control. In same block we intentionally skipped trees. Blight was severe in these unsprayed trees. Agri-mycin gave much better control than copper sprays.
KANSAS CITY, KANSAS

Although my orchard had serious blight every previous year, Agri-mycin kept it blight free. Had bumper crop of premium fruit.
TROY, OHIO

Agri-mycin gave us a 20% yield increase from 500 trees. Check trees (unsprayed) showed crop reduction of 15-25% due to blight.
MOORESVILLE, INDIANA

9.34 oz. jar makes up to 330 gallons spray. Save over 20% on economy size 25 lb. drum. Available from your supplier of spray materials.

Pfizer

*Pat. Pending

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SEND FOR LITERATURE

Chas. Pfizer & Co.
Dept. AFG-2
Brooklyn 6, N. Y.
Please send further information on Agri-mycin in the orchard, and where to buy.

Name_____

Address_____

City_____ State_____

Kind of fruit_____ No. of trees_____

Bags for "Kimberly" potatoes designed and supplied by **Dobeckmun Co.**, Cleveland 1, Ohio.

"We can pack at lower cost"

That's only one of the advantages reported by J. H. Henry Produce Co., Kimberly, Idaho, after shifting to packaging in film made of BAKELITE Brand Polyethylene.

In addition, Jim Henry tells us, "We've been able to get new business on both 5- and 10-lb. bags. Housewives remember the bright clean printing and reorder by brand."

Potatoes, carrots, apples, oranges . . . all sorts of produce keeps longer, stays fresher, tastes better and sells better in film made of BAKELITE Polyethylene. Find out yourself. Call your packaging supplier.

It pays to package in film made of

BAKELITE
BRAND
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®Terramycin Brand of Oxytetracycline

Kind of fruit_____ No. of trees_____

HONEOYE FALLS, NEW YORK

Speaking of Strawberries . . .

WE want to emphasize the fact that you should not plant strawberries after tomatoes, potatoes, green peppers, eggplant, raspberries, or an old strawberry bed. It's just as well to avoid planting them after any of the melon, cucumber, and squash families too.

All of these fruits and vegetables are adversely affected by *Verticillium* wilt which turns up in your strawberries much too late to do anything about it. Perhaps you've had the experience of bringing a perfect patch of the fruit to the blossom stage, with a heavy bloom that promises a tremendous and profitable crop in a matter of weeks. Suddenly, as you are about to start picking, you notice your plants are withering; they look starved for water and the half-formed berries turn brown and leathery. It *could* be something else—but you can safely bet it's *Verticillium* wilt. There is no cure for it, and where mother plants are affected, the runner plants are too.

Plant Good Plants

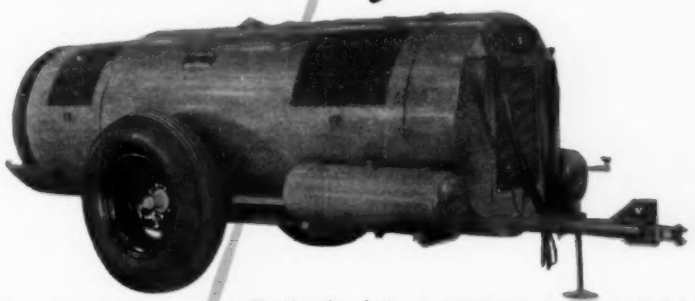
Verticillium wilt can be carried in the planting stock you have used, but professional plant propagators are careful to avoid this trouble. Your neighbor down the road may not know about wilt, however, and his gift of surplus plants from the edge of his rows may give you more than you've bargained for. We advise polite refusal of his generosity.

A lot of people scoff at the danger in *Verticillium* wilt infection, for it is true that only certain weather conditions, which do not prevail every year, make the problem serious. But a long wet spell during bloom followed by a hot dry period will do it.

If you're serious about raising strawberries, put the new patch on rotation with the first planting on sod or grain land. Keep three decent years between each repeat strawberry planting and rotate beans and grain while you're waiting to get back on with strawberries. One year of clover turned in will increase yields of all the crops in the rotation.—*Robin H'yld.*

best yet!

CARDOX
AQUA-JET SPRAYERS for '56



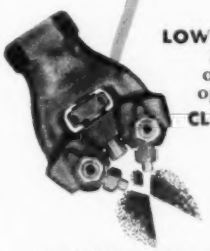
Cardox Aqua-Jet Sprayer, Model 115, equipped with 2 external fuel tanks, second tank optional at extra cost.

Dollar for dollar you get more, in a CARDOX Aqua-Jet than in any other sprayer being made today. It goes right back to the way they are engineered, from the wheels up! Now, for '56 CARDOX Aqua-Jets offer more advantages than ever . . . with new features, new improvements for even higher performance and longer service life . . . and a capacity range for every orchard spraying job. Before you buy any sprayer check CARDOX Aqua-Jets for:

OVERALL ECONOMY
They put uniformly mixed spray material where you want it—in the pattern and quantity you want—with least waste. Fast operation cuts spraying time and costs.

LOW MAINTENANCE
Simple, clean design, with every part specially engineered or selected to hold maintenance to a minimum, cuts your operating cost. *Original cost is low, too!*

CLEAN CROPS
Whatever sprayer you buy, you expect it to pay off in better fruit. CARDOX Aqua-Jets "deliver"—ask any CARDOX owner!



The Unique CARDOX 3-Way Combination FOR BETTER SPRAYING

AQUA-JET HEADS Fully Patented
Impinging jets give maximum dispersion, augmented by the specially engineered CARDOX Centrifugal Blower for most effective reach and coverage

Plus Mechanical Agitation for thorough mixing

Plus High Pressure Pump—the powerful "punch" for efficient projection

ALL THIS and a score of Important New Features for '56 TO MAKE AQUA-JET THE BEST YET!

Write for new Bulletin S-1R or see your CARDOX Dealer

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Bell Building • Chicago 1, Illinois
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kills
aphids
and
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and 75
other
insects
on 40
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Let's

MODERNIZE OUR SELLING

It's paradoxical—Eastern growers use modern cultural methods but cling to the era of horse-and-buggy selling

By CARROLL R. MILLER
Appalachian Apple Service, Inc.

FOR a concise, realistic background, we quote John Chandler in a recent issue of *New York-New England Apple Institute News.*

"This season has seen a tremendous amount of distress selling in the cities of the Northeast, with markets within the area constantly glutted with apples which are being forced upon the market regardless of price. The picture is reminiscent of the years 1949 and 1950 when there were very large supplies in New England and New York."

John Chandler might well have added "and reminiscent of Appalachia in 1951; of Michigan in 1953 . . ." That calls the roster of the past years; five out of seven of them. All this applies equally to Appalachia and the Midwest. None of us can sit in the scorner's seat. We all do it, whenever we have a big crop in our own Belt. It makes little difference whether the national crop is average or large.

Costly Distress Selling

"A tremendous amount of distress selling . . . markets constantly glutted . . . apples forced on the market regardless of price . . ." What does that cost the growers? A half dollar a bushel? A dollar? Two dollars? Why do we do it?

This season is demonstrating *again* the injury to markets, amounting to wreckage of many, that can be expected, even with an average-sized national apple crop, when one of the three Eastern apple belts has a larger-than-average crop—and one of the three usually does—New York-New England, the Midwest, or Appalachia. Hundreds of growers in the belt with the big crop force their apples into the near-by markets they know. When these are hopelessly glutted, the apples are rolled blindly into the distance on a "dump" basis. Gone is any consideration of the point where lower prices bring an increase in sales; or of the volume any market can actually use; or of cost-plus-profit to the grower. It is desperation-selling, in short. (We would emphasize that some top-notch apple selling is being done in the East by growers with both small and large production. But the market is set by the sheer volume of those other hundreds.)

All over the East and the Midwest, apple growers tend heavily to sell their own apples—as opposed to the Northwest, where selling is done by a comparatively few professional sales agencies, staffed with specialists in apple marketing. Each agency offers a big inventory—hundreds of thousands of bushels—in all varieties, sizes, and grades.

In Appalachia, the Northeast and the Midwest, the total of growers doing their own selling runs literally into the thousands. Most of them are growers, professionally; not professional apple salesmen. *Most of them,* we emphasize. It is the tradition in which the eastern apple industry has grown up.

Chains Are Merging

But in apple *buying,* there have been tremendous changes, and the Big Change seems just ahead. In the past 20 years the number of apple buyers has shrunk hugely. The "speculative buyer" has almost disappeared, for one thing. Chain food stores have increased until they cover the nation —"corporate" chains such as A & P, Krogers, and Safeway, with their own professional, full-time buyers; "voluntary" chains such as IGA and Frankford-Unity, buying through a central agency, also with a professional, full-time buyer.

And now, with a rush, the chains are merging all over the nation. Colonial Stores has acquired the fine Albers chain in Cincinnati. Winn-Lovett Grocery Company of Florida has purchased Steiden Stores in Louisville, Ky., and the Eden and Dixie Home chains in the Carolinas. Kroger is reported dickering for some Midwest chains. Wrigley's of Detroit has taken over Big Bear and Standard Foods. Safeway is reported negotiating for Texas and Southwest chains.

Consumer Likes One-Stop Store

All this is part of a pattern that seems inescapable. Food retailers have found that the public wants the one-stop store, where they can buy anything in foods, any quantity, at one visit. They have found that mass merchandising of food is profitable. Mass merchandising means mass purchasing. Merging of the chains is the logical extension of this. First it was merging of stores into chains; now chains are merging into super

chains. The merging means a sharp reduction of the number of apple buyers—fewer and fewer buyers, who will want larger and larger quantities. It *could* mean that a possible score or so of buyers will soon purchase most of the nation's "fresh" apples.

The large-volume buyer is almost compelled to deal with large-volume sellers; those who have plenty of the wanted varieties, in the wanted sizes and packages. He can hardly take the time or the risk of shopping around among sellers who have only small stocks, in limited sizes and packages; with the lack of uniformity involved in buying from many sources.

In the face of this strong, increasing tide, larger and larger quantities of apples, the eastern practice—thousands of sellers offering a small volume each—has already brought financial starvation to many, many growers. It is so costly that a couple of consecutive full-crop years could put many more out of business.

Sellers Must Merge

This applies just as forcibly to sales to processors. In this field, hundreds of growers now must sell to a few score of processors. The salesman with the big block of fruit is the one who is important to the processor. The small grower takes what is left. Too frequently, there isn't any room left in the processor's bins—except perhaps at give-away prices. West Coast growers have recognized this, and are taking corrective steps.

Clearly, a thousand amateur salesmen cannot compete equally with a dozen professional buyers. But a dozen trained salesmen and a dozen buyers make for a stable market.

The eastern grower must meet this tide of merging, professional buying power with a matching merger of the thousands of small-volume sellers. Only the growers themselves can organize and engineer this merging. No one will do it for them. THE END.

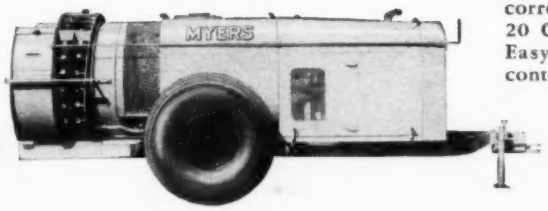
HANDY TRUCKER GUIDE

ONE of the best truckers' guides to apple orchards and cold storages we've seen is put out by the Michigan Apple Growers and Storage Association in co-operation with the Pure Oil Company and the Michigan State Highway Department.

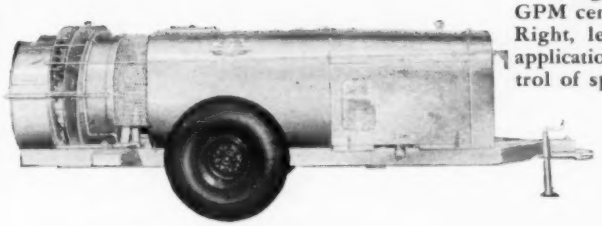
The pocket-sized booklet lists orchards and storages by county and town. In the book is a fold-out Pure Oil map with fruit areas indicated, along with highway information for truckers.

This tie-in between growers, oil company, and highway department results in a better booklet than growers could afford by themselves.

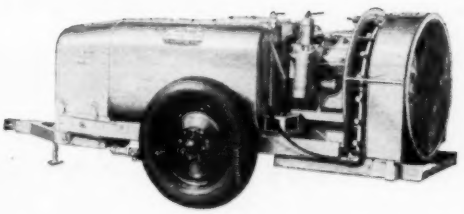
NEW MYERS ORCHARD SPRAYERS



Concentrate Sprayer: 45,000 cubic feet of air per minute, 90 MPH. Left-hand, right-hand or two-way spraying. High-pressure, abrasive- and corrosive-resistant, 13 or 20 GPM piston pump. Easy-to-reach positive controls.

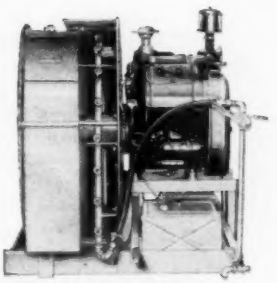


Semi-Concentrate and Dilute Sprayer: 45,000 cubic feet of air per minute, 90 MPH. High-head, high-capacity, 120 GPM centrifugal pump. Right, left or two-side application. Remote control of spray discharge.



All-Purpose Air Sprayer: 30,000 cubic feet of air per minute, 90 MPH. High-pressure, corrosive- and abrasive-resistant, 20 GPM piston pump. 36", seven-blade, high-strength cast-aluminum axial-flow fan moves more air with less power. Right, left and two-way spraying.

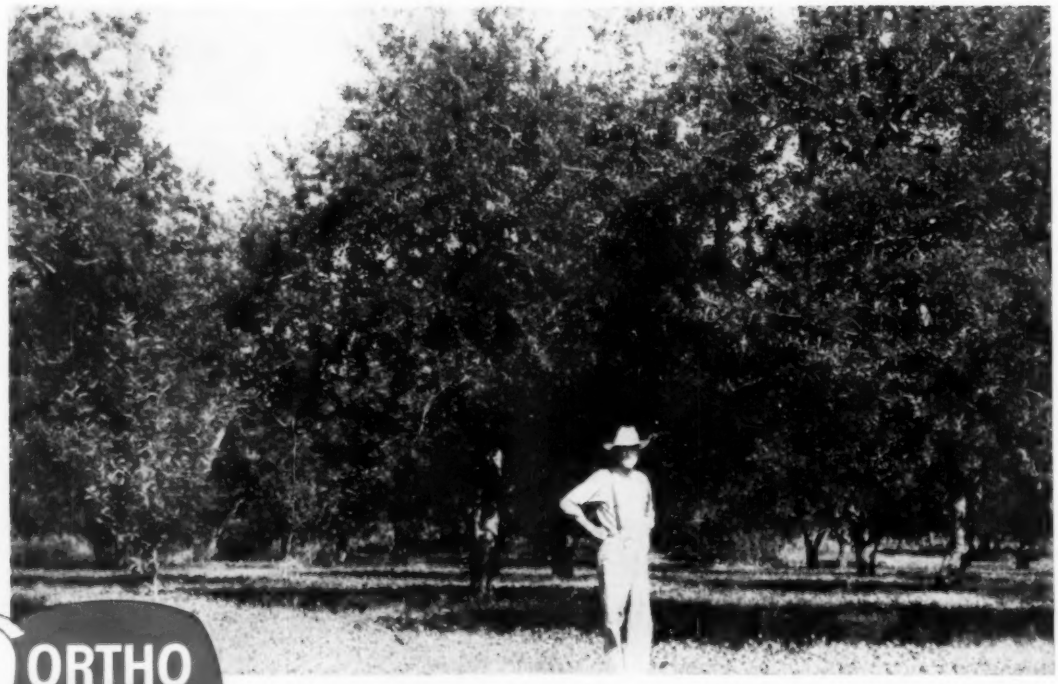
Blower Attachment: 30,000 cubic feet of air per minute, 90 MPH. 36", seven-blade, axial-flow aluminum fan. This unit converts any high-pressure sprayer to a one-man air-blast rig. One- or two-side delivery.



Write today for the name of your Myers® Sprayer Dealer

THE F. E. MYERS & BRO. CO., 8202 ORANGE ST., ASHLAND, OHIO

IN CANADA—THE F. E. MYERS & BRO. CO. (Canada) LTD., Dept. 8202, Kitchener, Ontario



Used ORTHOCIDE (captan)—Got 90% Fancy crop. With former sprays his apples averaged 75% 1's, 20% 2's and 5% culls. Season-long use of ORTHOCIDE (captan) resulted in 90% Fancy crop with few seconds. "Never saw finer foliage or shinier, better colored apples!"

CONRAD R. CASPER, Cobden, Ill.

ORTHO BUILDS BETTER YIELDS

Growers prove that

Enjoy ORTHO "Near Neighbor" Service

No matter what crops you grow there's an ORTHO Fieldman right "next door" to wherever you are—ready to demonstrate ORTHO values right on your place—learn your problems first hand and work out the way to increase your crop yields. Your ORTHO Fieldman is a working specialist—scientifically educated and intensively trained. Call him!

Portland, Ore.
Whittier, Calif.
San Jose, Calif.
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Orlando, Fla.
Phoenix, Ariz.
Shreveport, La.
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TM 'S REG U S PAT OFF . ORTHO. ORTHOCIDE

ORTHO
SCIENTIFIC PEST CONTROL
REG. U. S. PAT. OFF.

Convinced that ORTHOCIDE best spray control. Here ORTHO Fieldman Matthew Zilinskas (left) examines foliage of grower Frank Rosson, Makanda, Ill. Mr. Rosson started ORTHOCIDE in 1954 on 125 acres of Elberta peaches. Results: far greener foliage, earlier; peaches firmer, more uniform with fine all-around color. Convinced him all-season ORTHOCIDE Spray best for his fruit.

Results show high-quality fruit—firmer, better colored and more uniform—from healthier trees

The pay-off's in the picking! ORTHOCIDE-treated orchards certainly pay off—with exceptional disease control, larger yields, better grade fruit with increased storage life.

That means money in the bank! And it means a healthy head start on the next crop season. ORTHOCIDE in an ORTHO program pays off! These growers proved it again.

Start your ORTHO Spray program NOW! Next year compare yields, compare the health of your trees, compare profits. Don't delay. Join ORTHOCIDE users all over the country who agree, "...it's best for my trees."

ORTHOCIDE (captan) upgrades yields

Better color on peaches. Used ORTHOCIDE 50 Wettable in 1953 and 1954. Got better foliage—no burning, no defoliation, no twig die-back. Bark smoother. Peaches sounder, better colored than ever before. Gives the accumulative effect of ORTHOCIDE credit for vigor of his trees. A. J. MOSELEY, Lincoln, Ala.

Get extra dividends with ORTHOCIDE (captan) in a complete ORTHO program

Only ORTHOCIDE, a top quality formulation of the chemical, captan, provides:

1. **Exceptionally fine particle sizes.**
2. **Better sticking, wetting and spreading agents.**
3. **A superior carrying agent (non-catalytic).**
4. **Compatibility with the full ORTHO line of insect and disease controls.**

For best results ORTHOCIDE should be used in a complete ORTHO spray program as recommended by your ORTHO Fieldman.

On all chemicals, read directions and cautions before use.

Curculio and Codling Moth

kill BOTH apple pests with ONE insecticide

Du Pont Marlate® 50

Methoxychlor Insecticide

Apples get double protection from one insecticide when you spray "Marlate" 50. It stops curculio damage—early or late. And, when cool weather delays emergence, "Marlate" 50 controls late curculio as well as codling moth that may be active at the same time. The long-lasting residue from "Marlate" holds against curculio and codling moth from one spray to the next.

Finer finish and more effective protection close to harvest are other extras you get with "Marlate." "Marlate" doesn't contribute to russeting—even on sensitive varieties. *Use it to stop apple maggot, right up to 7 days before picking.*

CHERRY GROWERS

"Marlate" 50 gives you top control of curculio and cherry fruit fly *plus* mild action on fruit and foliage. Put a block on a "Marlate" 50 program and see for yourself. On Montmorency, "Marlate" 50 helps increase yield by assuring better vegetative growth. Use it on English Morello to avoid dry stem.

On all chemicals always follow label instructions and warnings carefully.

DU PONT

MARLATE® 50

Methoxychlor Insecticide

BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

By HENRY BAILEY STEVENS

Nuts Throughout the Year I WOULD like to open for full discussion among our readers a subject dear to my heart. It starts with the idea that there is something superior about tree food. Surely there could not be a more sympathetic audience on this point than the readers of AMERICAN FRUIT GROWER. Most of you are orchardists. You have believed in tree crops enough to stake money on them and wait. What about eating them? Serving them on your table?

"We do," a chorus of voices will protest. "We make it our business to have all the fruit we can eat."

Wait a minute. No doubt you serve plenty of *fruit*, especially the kinds you grow on the home farm. Fruit has been at last quite generally sold to the American public. Most all of us appreciate its vitamin and mineral content, its health properties.

But there is another type of tree food which has not attracted half the attention it deserves. The situation is hard to understand, because logically the tree nut would seem about the most valuable buy in the food market. It is chock-full of protein, the element most essential for the renewal of our bodies. It is high in such nutrients as oil, iron, and calcium, and it leads the procession in calories. It is exceedingly tasty. Children clamor for it. Yet except at Thanksgiving and Christmas (when it is put on as an accessory dessert!) it seems to be forgotten.

Yet the average person in this country eats less than two pounds of tree nuts, in the shell, per year.

Here is a bowl of walnuts and almonds from California, filberts from Oregon, pecans from the South, butternuts and black walnuts from miscellaneous places, Brazil nuts from South America. All come from the same magic combination as our tree fruits—roots that go wide and deep into the soil, a vast sea of green foliage open to the sun, buds that swell to form flower and rich seed. Marvelously packaged in individual tight cases, they will keep fresh through the year.

Alongside now put a plate of meat. From the standpoint of food chemistry it has less protein per gram than the nut and even this is a second-hand protein, which the animal was in process of manufacturing for its own body. Its use as human food may well be a relic of the ice age when northern man had to eat it if he were to survive.

Let's make a modest experiment within our own families. Whatever you do about meat, why not keep a bowl of nuts on the table with a nutcracker at every plate? If there is demand for a cooked protein, try a nut-roast; there are delicious ones, with recipes in many cookbooks.

Write and tell me your experience with both meat and nuts. We shall welcome discussion pro and con. And if any of you are interested in making the shift from meat to nuts for your protein, I would be glad to advise.

'Safety First' in Orchard HERE is a thoughtful contribution to our Safety-on-the-Fruit-Farm contest, which gets our Windfall prize for the month. It is from E. O. Worth, of Mondamin, Iowa, who has 60 years in the fruit game behind him:

"More people are hurt picking apples from tall trees. A tree shaped right is easy to pick. Our trees up to 15 years can be picked 75 per cent from the ground. Sometimes a tree may have one straight upright limb that doesn't bend with the fruit, and so is hard and dangerous to pick. Such limbs or central leader should be cut at a side branch. I had one picker fall trying to reach all the apples from such a tree. He had to quit the job and sued me for damages.

"I instruct pickers to take what they can reach easily and shake off the few remaining. Sometimes a stiff low limb, sticking out sideways, will rake the driver from tractor or sprayer; it should be removed. I have heavy cards tacked to the sides of ladders giving instructions to pickers. One of the main rules is to place the ladder quite upright. I had one picker who laid his ladder very flat and walked into the tree. The other pickers, hearing a crash, would yell, 'Down goes Bill again!' I had to watch him every year, or he would break a good ladder."

Address your "Windfalls" contributions to Henry Bailey Stevens, AMERICAN FRUIT GROWER, Willoughby, Ohio.

WANTED
Pollination Experiences

Did you at one time have difficulty getting a set of fruit on your trees? If so, tell us what you did to overcome the problem. We want your experience story for the May Pollination Issue. Send letters and, if available, photos. Regular author payment. Address contributions to Richard T. Meister, Editor, AMERICAN FRUIT GROWER, Willoughby, Ohio.

EXTRA PROTECTION *for* **APPLES!**

LOWER COST *for* **YOU!**

Spray Du Pont "Fermate"

Ferbam fungicide

Here are 5 ways you profit!

1. **Wide-range protection:** "Fermate" controls *both scab and rusts*, plus more minor diseases than any other fungicide.
2. **Low original cost:** The low price of "Fermate" means less money in the tank.
3. **Lower cost per bushel:** More apples with "Fermate" means lower cost of production.
4. **Fine finish of red varieties:** "Fermate" does not contribute to sun scald or russet of red varieties.
5. **Maintain orchard vigor:** "Fermate" keeps leaves deep green. Good foliage makes big yields.

• • •

FOR PEACH LEAF CURL . . . *Both experiment stations and growers have found "Fermate" a more highly effective, yet inexpensive dormant spray.*

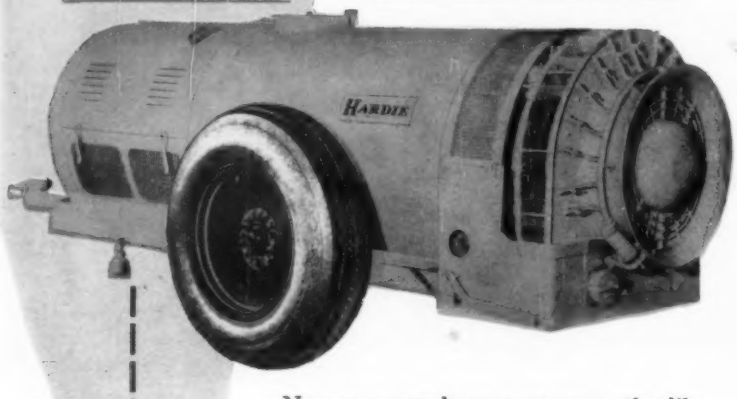
DU PONT **FERMATE®** FUNGICIDE

BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

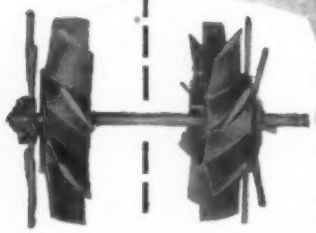
THE ABSOLUTE FINEST

THE HARDIE HURRICANE

✓ LOW IN HEIGHT
✓ STREAMLINED
✓ EASILY HANDLED



Now you can have a sprayer, the like of which never before has been available. Ease, speed, efficiency in application of concentrate and dilute sprays now is raised to a new higher level by the famous Hardie Hurricane 2-Fan Sprayer. Give yourself the best, and your crop the best pest control.



Tremendous air volume and velocity from two specially designed cast aluminum fans mounted with opposed blades on a single shaft in a fan housing of exclusive design.

Choice OF THREE MODELS

Model DF-26A.
2, 26 in. fans, Ford V-8 Industrial Engine, 140 HP at 2600 RPM.

Model DF-26B.
2, 26 in fans, Ford Industrial Engine, 108 HP at 2600 RPM.

Model DF-24B.
An attractive low price. 2, 24 in. fans, Willys Hurricane Engine, 70 HP at 4000 RPM.

Air Blast and High Pressure Sprayers, Dusters, Irrigation Systems.

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• SOLD AND SERVICED ALL OVER THE WORLD

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PRUNE

(*Continued from page* 13)

greater deposits in the lower sectors for the dilute, hand-gun and air-blast concentrate applications, respectively.

The importance of the tree-growth factor is reflected in the codling moth control obtained. Although both methods of application led to satisfactory control of this pest, there was a significant increase in control over the air-blast, concentrate method when the hand-gun was used under the more adverse conditions. Excellent and equivalent control was obtained with both methods when the trees were in near-optimum conditions of height and density.

What was true for codling moth is certainly true for apple scab. Hence, this condition—the difficulty of putting enough insecticide in the top of a mature tree, coupled with the fact that the chemical is subjected to more rapid loss from this area due to exposure and weathering—makes it all the more important that the tree be cut back to a moderate height and pruned to make it more accessible to the spray-laden air-stream.

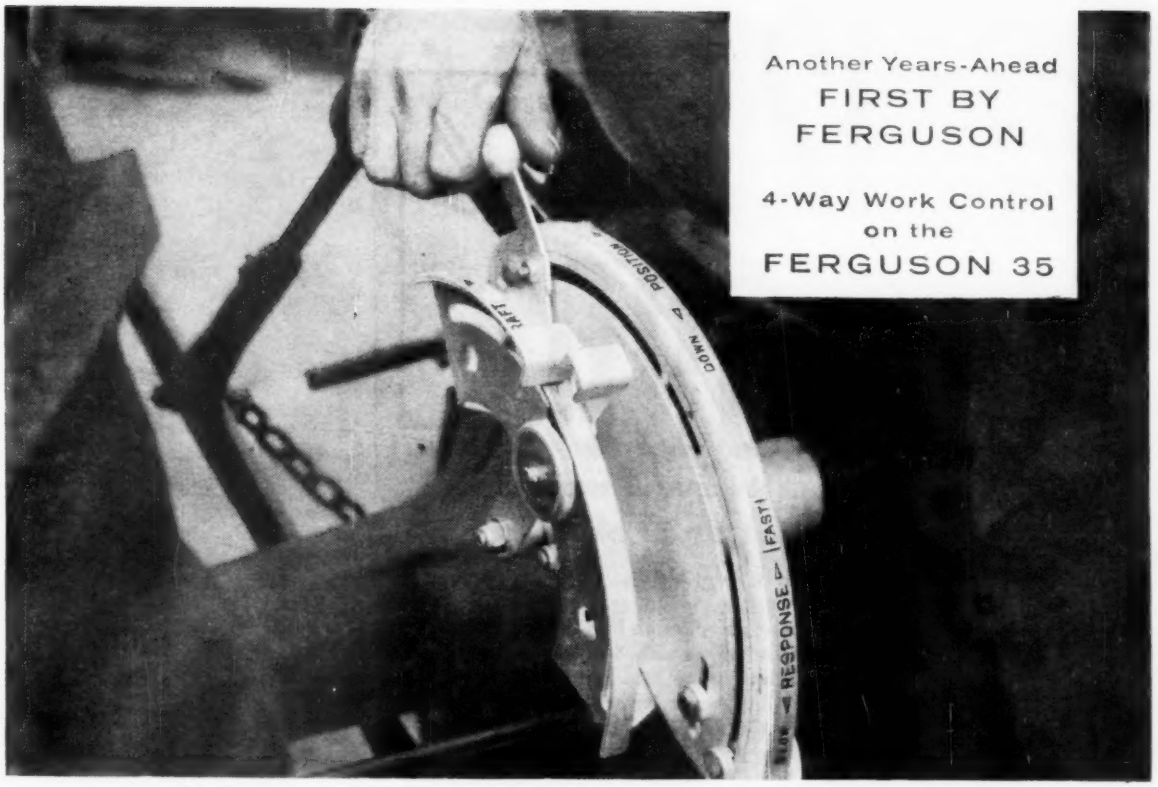
Normally the pruning job done in the course of a season will suffice, but it should be emphasized that it will be necessary to keep the trees well-trimmed each year the air-blast concentrate is used in an orchard. Naturally, even within the scope of what appears to be an adequate pruning practice, it is still difficult to make certain varieties easy to cover, and some sort of compromise must be made so that the production level of an orchard is not curtailed.

The degree of pruning will be governed also by the type of market outlet for the crop. The aim is for high production in western New York where the bulk of the harvest goes to processors, and for high quality and color in the Hudson Valley where most of the production is geared to the demands of the fresh markets in the near-by metropolitan areas.

Make Small Cuts

The pruning job should consist primarily of making numerous small cuts equally distributed over the entire tree. If this is done frequently, it should never be necessary to prune excessively during any one year. If a tree is too high, the upper branches may be headed back to good laterals. Aside from lowering the top, this practice will also stimulate growth in the lower as well as the upper branches. It may be well to keep

(*Continued on page* 34)



How Ferguson Quadramatic Control Lets You Take Full Charge of Implements

Control of implements is sure and easy with a Ferguson "35" because of the time-tried and continually improved Ferguson System.

Right at your finger tips is new Quadramatic Control that will amaze you with its close command of implements. This Ferguson "first" lets you raise and lower implements, select draft and maintain working depth, adjust the hydraulic system's speed of response and hold implements at any position you choose—all with the same compact control quadrant.

And you'll find the other members of the Ferguson 4-Way Work Control team contributing their part to your mastery over every farm job: Variable-Drive PTO for versatile, synchronized power; "2-Stage" Clutching for one-pedal control of both transmission and PTO; and Dual-Range Transmission to insure peak efficiency in each speed range.

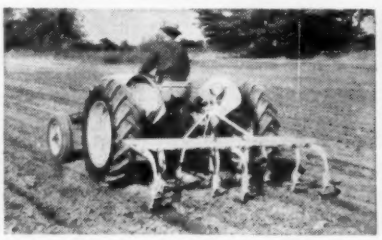
No longer need your tractor's limitations dictate how well you farm. Ask your Ferguson Dealer to show you how the Ferguson "35" lets you take *complete* charge!

Ferguson

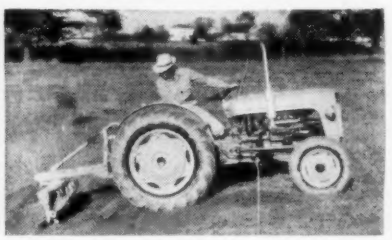
Racine, Wisconsin

FOR PLOWING, draft is maintained automatically, even with heavy overhanging implements.

FOR DISCING AND CULTIVATING, you can control penetration exactly, even in changing soils.



FOR UTILITY JOBS, you can raise, lower, hold, and operate implements while you're working.



New 12 Speed CASE "300"

3-plow

Sets a New Trend in Tractor Design

Daringly different from hood to hitch . . . dazzling in beauty . . . dynamic in performance . . . the Case "300" brings to life your dream of an ideal 3-plow tractor. Its Tripl-Range transmission with 12 speeds forward . . . ¾ of a mile per hour up to 20 . . . plus three reverse . . . give you versatility never before achieved in extra-heavy tillage, cultivation or road travel.

New Powr-Torq engines for the fuel you prefer pull normal loads at half throttle if desired . . . unusually high torque at two-thirds of rated engine speed enables you to go through tough spots without shifting. There also is Cam-and-Lever steering with today's shortest turning . . . duo-control Safety-Lock hydraulics . . . "Tell-Easy" instrument panel with eight separate indicators . . . 3-point Eagle Hitch with stabilized depth control . . . Constant PTO with separate traction clutch . . . and Powr-Shift rear wheels . . . all with controls where you expect to find them.

New Powr-Torq Engines ...Gas, LPG, Distillate, Diesel

General Purpose or Utility Models

Visit your Case dealer now . . . be one of the first to drive the Case "300" in whatever model suits you best. Ask about the easy, sensible Case Income Payment Plan. Write for the colorful "300" catalog. J. I. Case Co., Dept. B-136, Racine, Wis.

PRUNE

(*Continued from page 32*)

in mind that a well-pruned tree may appear skeleton-like during the dormant season when most pruning is done, but will present the most favorable conditions of tree growth for air-blast spraying when it is in full leaf.

Regular annual pruning should be a "must" in an orchard which is to be sprayed with an air-blast sprayer. In addition to facilitating an even distribution of spray material throughout each tree to assure effective control of insects and diseases, and for other purposes previously mentioned, additional benefits will be realized as well.

By enabling the sunlight to diffuse to all parts of a tree, the fruit will be of higher quality and more highly colored, and the foliage will dry off more rapidly making the tree less susceptible to scab infection. The fruit will be less subject to injury by limb rub and will size up more satisfactorily if excess limbs and branches are removed. Finally, there will be more even growth throughout the tree and the picking process will be facilitated by the elimination of hard-to-reach branches.

Pruning is essential in the production of a good, high-quality crop under any condition, but its importance becomes increasingly apparent when the spraying of an orchard is accomplished with an air-blast sprayer. THE END.

SPRING SPRAYS CONTROL BROWN ROT

THE key to brown rot control in our peach orchard has proved to be early sprays and proper timing. Also important is the removal of mummies (rotted fruit from the previous crop) from the ground.

We have found that brown rot is either controlled or not controlled in the spring sprays, namely, prebloom and blossom periods. We use captan in these sprays along with compatible insecticides as needed.

Sulfur may be used instead of captan, but we prefer captan in early sprays. If bloom period is abnormally long, we make an extra captan application for insurance.

Following the curculio period, fungicide applications may be three weeks apart until preharvest. One application two weeks before harvest is advisable.—*R. M. Marlatt, Marlatt's Port Murray Fruit Farm, Port Murray, N.J.*

Crop production deficiencies worry you? Change to...

LUSTY

CHEMURGIC BIO-CHEMISTS

A dry-form soil amendment and supplement of the KMOLA-type, formulated for high crop production. It promotes and accelerates the stooling of grasses and grains. Tones up reluctant soils and those fatigued by intensive cropping. Assists the normal action of crop rotation in soil sanitation; provides crop rotation action in orchards. Opens up pore-blocked soil to better water penetration and aeration.

CHEMURGIC

Bio-Chemists
TURLOCK, CALIF.

INSECT BATTLE

(*Continued from page* 15)

moth larvae compared in 1954 and 1955 were equally susceptible to DDT. While a normal dose of DDT gave about equal and effective control of all the test strains, exposure to lower dosages revealed two strains from near Yakima, Wash., and one from Ohio that were definitely less susceptible than the others. In West Virginia, too, two strains have come to notice that are below the average in susceptibility to DDT.

To combat the codling moth in orchards in which the regular DDT spray program seems to have failed, growers have been increasing the number of applications of DDT and the quantity in the spray mixture. This has not always been the right answer. In addition, there is a limit as to how far growers can go in this direction without exceeding the tolerance for DDT. If the tolerance is exceeded, there is no dependable method for removing any appreciable amount of DDT without injuring the fruit.

Analyses of samples of apples from a number of orchards indicate that five or six applications of 1½ to 2 pounds of 50 per cent wettable DDT per 100 gallons, the last 40 days before harvest, is about the safe limit without danger of exceeding the tolerance on some varieties.

Analyses also indicate that other chlorinated hydrocarbon insecticides, such as methoxychlor and TDE, should not be used in late-season applications following a full early-season DDT schedule. Methoxychlor, however, can be used in a full-season schedule without exceeding its tolerance.

Unfortunately, methoxychlor does not appear to be effective against the strains that are not controlled with DDT. It is evident that there is need for materials that can be used to supplement or replace DDT. There are several promising ones available. Most important is parathion, already in wide use in mixtures with DDT. EPN and malathion can be used alone but better results are obtained when they, like parathion, are used with DDT.

Promising Materials

Ryania, a material exempted from a tolerance, is another promising material. It has given good control of a number of strains whether or not they may be controlled effectively with DDT. Ryania, parathion, EPN, and malathion were the most promising materials tested in 1955 for use in late July and August when DDT should be discontinued.

(*Continued on page* 36)

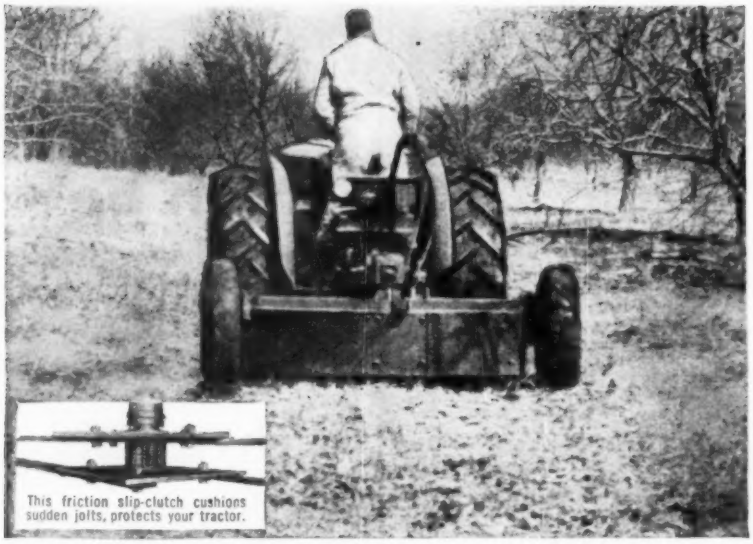
MALATHION

can be applied through the season and close to harvest without residue problems.

Write for free copy of
MALATHION GROWER'S GUIDE

AMERICAN Cyanamid COMPANY
AGRICULTURAL CHEMICALS DIVISION
30 Rockefeller Plaza, New York 20, N. Y.

Developers and Producers of Malathion and Parathion Technical



Brillion Cut-All Rotary Shredders — as easy on your tractor as a PTO mower.

Brillion Rotary Shredders

clean up orchard prunings the easy, low-cost, shockless way

A FEW trips down the tree rows with a Brillion Cut-All Rotary Shredder and its whirling blades of steel reduce heavy orchard prunings to a fine mulch. No hand gathering, bucking, burning.

Brillion's exclusive friction slip-clutch blade control makes it possible. It cushions the jolts of heavy cutting ... protects PTO, transmission gears, shafts and bearings.

The Brillion has two sets of two blades — each independently controlled through the friction slip-clutch. If a stone, stump or wire stops one, the other set keeps cutting.

The tilted blades produce a suction that raises lodged and down material for cleaner shredding in fewer passes, cleaner grass clipping anywhere.

Think of the labor this saves ... the time you can put to other productive work ... the humus benefits to your land. Add to these the low cost of the Brillion, and you can't afford to put in another season without one.

Mail the coupon below for full information and special folder. See your Brillion dealer for a demonstration.

NEW OFFSET MODEL
shreds under branches while tractor stays clear

Brillion Cut-All Rotary Shredders are now available with a swinging type drawbar that provides an offset hitch. Direct PTO drive ... no belts or pulleys to slip.

You can clip sodded orchards or shred prunings close to trees while your tractor rides clear of branches.

This same hitch can be used as a straight hitch, too. Requires only a simple adjustment for quick change-over. Makes the Brillion Cut-All more useful than ever.

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CUT-ALL ROTARY SHREDDERS

IF BRILLION MAKES IT, IT MUST BE GOOD

Clip and mail to Brillion Iron Works, Inc., Dept. RS-25-2, Brillion, Wisconsin
Send me complete information on the Brillion Rotary Shredders I've checked below:
☐ Standard Fixed Drawbar ☐ 3 point Pick-up ☐ Offset Drawbar
Write your name and address on the margin.

INSECT BATTLE

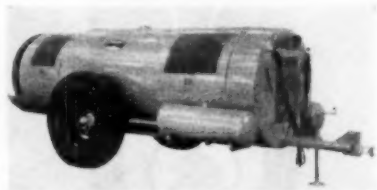
(*Continued from page* 35)

Diazinon again gave good control, whether used alone or with DDT, but it is not yet registered for orchard use. Moreover, diazinon has shown a tendency to russet some varieties of apples and affect the lenticels. More work is needed to determine how it can be used safely and effectively.

For the first time systemic insecticides are of interest in codling moth control. Preliminary tests have been made with several such insecticides that have sufficient promise to justify further work with them.

Mite Control

Mites continued as the number one orchard pest problem during 1955. Their increasing resistance to parathion and other phosphorus insecticides focused interest on nonphosphorus compounds. Most promising, in addition to aramite, which is already in wide use, were Rohm & Haas FW-293, dichlorophenyl benzenesulfonate (Genite), ovex, DMC, p-chlorobenzyl p-chlorophenyl sulfide



New Aqua-Jet sprayer Model 115A, of Cardox Corporation, Chicago 1, Ill. Independent oil hydraulic controls insure instantaneous shut-off of spray. Above model has extra external gas tank.

(Mitox), and chlorobenzilate. Also promising were several phosphorus compounds, including demeton, diazinon, and several known only by code numbers.

Late dormant and delayed dormant applications of oil sprays delay the occurrence of damaging populations of the European red mite, but prepink and pink applications of other materials may be even better. Demeton was extremely effective in such applications, and Genite, ovex, and Mitox showed promise. TEPP and sulphenone are other materials that have a place in the mite control picture, and parathion, EPN, and malathion can still be used in orchards in which the mites have not become resistant to them.

Suppressing a mite population that has reached an injurious level is still a serious problem. If bronzed foliage is evident, it is apt to be too late to prevent serious damage to the trees. If control is feasible, at least two applications appear necessary, the first immediately and the second usually a week or 10 days later.

Demeton and aramite are the supe-

rior materials for such use, and TEPP can be used, especially if an application is needed close to harvest. With the increased tolerance now approved for demeton, recent studies show that it can be used in at least two applications three weeks apart during the summer if the second application is at least three weeks before harvest. The exact safe interval for the use of aramite before harvest is uncertain, but is believed to be about two weeks.

No matter how effective an insecticide may be, it cannot be expected to give results if it is not properly applied. Growers should check the various parts of their trees to see just what kind of a job they are doing with their spray equipment. If insect damage is increasing and the spray coverage is found to be poor, a more powerful machine may be needed, or one of superior design. Some growers may want to consider a return to spraying with hand guns.

A word of optimism and a word of advice for 1956: Orchard insect control should not be more difficult than in 1955. A satisfactory level of control should be possible within the limitations of tolerances on harvest residues. Read the directions on the label of the materials you use and follow them. THE END.

DISEASE PATTERN

(*Continued from page* 14)

ing the winter pruning operations to prevent black rot infections on the apple leaves and fruit in 1956.

Apple Scab—In most areas apple scab was readily controlled in the early part of the season. Many experiments with different fungicides gave inconclusive results because of the relatively few infections in 1955. However, following the hurricanes in August, there was a period favorable to late fruit infections and the pin-point type of infection on maturing fruit was a serious problem in many apple orchards. It is anticipated that these late infections may cause trouble under storage conditions.

Sooty Blotch and Fly Speck—The hurricanes demonstrated that the fungi causing sooty blotch and fly speck diseases of apples are capable of causing serious losses even when the infections do not take place until the middle of August. Apple growers who applied fungicides early in August had the minimum number of sooty blotch and fly speck infections, but where no fungicide was applied in August these two diseases produced numerous spots on the apples under the humid conditions induced by the hurricanes.

(*Continued on page* 38)

Model B Tractor with its new two-bottom mounted plow. Hydraulically lifted and lowered. SNAP-COUPLER Hitch!

Electric lights and starter, cushioned seat with back rest, and battery ignition system are standard equipment on the Model B.

NOW! for the thrifty "B"

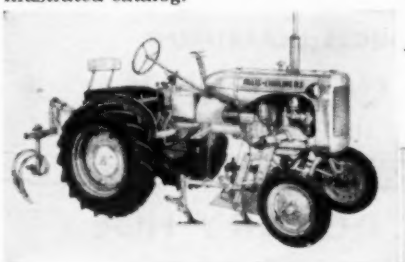
new convenience . . . new tools

Talk about a *thrifty* buy in tractor power — the Allis-Chalmers Model B is it — now more than ever.

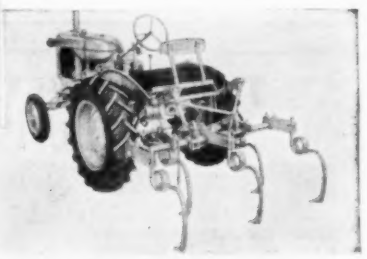
You'll like the added convenience of SNAP-COUPLER hitch, now available for the Model B Tractor. And a full line of new mounted implements brings greater ease, capacity and economy for every operation.

The Model B has been a favorite with nurserymen, fruit growers and specialty farmers for many years. Now with the new 2-bottom mounted plow, new models of row-crop cultivators, new 7-foot, spring-tooth field cultivator, new deep-tillage, coil-shank field cultivator, new planters — plus new convenience in operation — this is the tractor for you.

Before you buy a tractor, it will pay you to visit your Allis-Chalmers dealer. You'll find a lot of tractor at a price you can't match. Write for free illustrated catalog.



◀ Model B and one of three new models of single-row cultivators. Right and left front gangs operate independently.



New deep-penetrating, 5-tooth ▶ mounted coil-shank field cultivator for the Model B Tractor. SNAP-COUPLER Hitch.

OPTIONAL EQUIPMENT FOR THE MODEL B

SNAP-COUPLER Hitch, rear lift shaft, latches and ram
Rear Power Take-Off and Clutch-Type Pulley
Hydraulic Pump
Adjustable Front Axle
Side Weights
Rear Wheel Weights

ALLIS-CHALMERS, FARM EQUIPMENT DIVISION, MILWAUKEE 1, WISCONSIN

ALLIS-CHALMERS

SNAP-COUPLER is an Allis-Chalmers trademark.

Photo Courtesy Caterpillar Tractor Co.

SUN DORMANT OIL MEANS

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The problem: Mites are not being checked by many popular new insecticides.

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In addition, Sun Dormant Oil gives two extra advantages: less spray is needed for complete coverage; and, it is tolerance-free.

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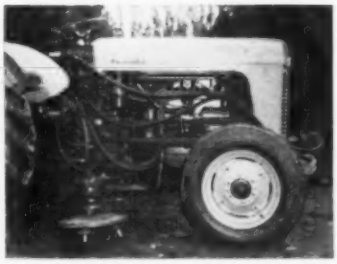

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This Rotary Hoe attaches to our regular Thompson Hydraulic Hoe in the place of the blade shank. It is driven from the tractor P.T.O. The Rotary Hoe solves your problem of working your grapes under the wire and eliminates all hand hoeing. It works equally well in berries, currants, and trees up to 6 or 8 years old.

The Thompson Hydraulic Hoe is simple to attach and easy to operate. Ruggedly built, hydraulic operation, ideal for the fruit grower.

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Mfg. by PERDUE & ORTON CO.

105 Clay Street North East, Pa.

Hurricane Damage to Apples—An obscure condition bearing some resemblance to bitter pit was observed on apples in certain orchards near Washington, D. C., following the hurricanes. The fruit showed green spots on the surface and brown flecks in the flesh. Frequently the affected areas were slightly flattened or depressed, but they had not corked over like limb rubs. The spots were not observed prior to the hurricanes and the visible evidence in the orchard indicated these fruits had been mechanically bruised by being blown against adjacent limbs during the height of the hurricanes.

Strangely enough this injury was noted mainly on Red Delicious apples and fruit of other varieties on adjacent trees in the same orchard were much less affected. Apparently the Red Delicious apples were in a stage of development that made them particularly subject to mechanical bruising.

Peach Brown Rot and Scab—Since the freeze of March 26 and 27 destroyed the peach crop in the southern sections, growers in these areas did not have to spray their trees during the summer of 1955. Examination of peach twigs collected in South Carolina late in the fall showed numerous spots caused by the sooty blotch and fly speck fungi. These two fungi are of no economic importance on peach trees and have been noted many times on non-sprayed seedlings, but it was unusual to encounter them in commercial orchards. The peach twigs also had many scab lesions and southern growers should time their sprays very carefully in 1956 to prevent scab infections developing on the fruit.

Brown rot developed in northern peach orchards following the hurricanes and caused severe losses in some orchards. Apparently the drenching rains accompanying the hurricanes removed most of the fungicides adhering to the peaches from earlier applications. Peach growers who made emergency fungicide applications in the interval between the two tropical storms held their losses to the minimum, but growers who failed to renew the fungicide deposits on their peaches had a difficult time at harvest.

Bacterial Spot—Bacterial spot of peach was unusually prevalent in some of the more northern regions where it has been of little importance in recent years. Reports from Michigan in particular comment upon the prevalence of this disease in 1955, but it was noted also in New York and Pennsylvania. Several investigators are testing the

effectiveness of antibiotics for the control of this disease.

Powdery Mildew—In 1955 powdery mildew (not caused by the fungus that attacks apples) was unusually prevalent on peaches in one eastern state and was noted on the peaches from adjacent states.

Powdery mildew spots on peaches are snow white in their early stages and then change to brown. The skin in the affected area is killed, and cracks are apt to develop as the fruit expands in size. One orchard had 60 per cent of the peaches infected.

While powdery mildew occurred in peach orchards that had been sprayed with sulfur, field observations indicate that the disease was more prevalent and destructive in peach orchards where organic fungicides were used instead of sulfur.

Most powdery mildew infections occur on the peaches early in the season, while sulfur injury is more apt to occur in midsummer when the temperatures are high. In peach orchards where powdery mildew was serious in 1955 it is suggested that sulfur sprays be used from the blossom period through the scab period and that the organic fungicides be used in the later sprays. This split-schedule procedure will give maximum protection against powdery mildew infections and at the same time reduce the risk of sulfur injury to the peaches in midsummer.

Peach Rust—Following the hurricanes, peach rust, ordinarily a minor trouble, caused serious premature defoliation and fall blooming of the trees in South Carolina peach orchards. Reports indicate that it also caused some defoliation in Georgia.

Antibiotics and Fungicides—Research with antibiotics and fungicides for fruit disease control was hampered in 1955 by low incidence of diseases in experimental plots.

Certain results obtained by commercial orchardists are of considerable interest, however. A number of growers, for example, obtained excellent control of the cherry leaf spot fungus through the use of cycloheximide (Actispray) only to have the fruit seriously damaged by the brown rot fungus just before harvest time.

This lack of control of the brown rot fungus illustrates the very selective action of the antibiotic materials. Properly used cycloheximide controls the cherry leaf spot fungus efficiently. However, growers must remember that it is not a "cure-all" and that because of its selective action some other fungicide must be included to protect against brown rot fungus. THE END.

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42" axial flow fan
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There's the big, big AIRMASTER '420' that delivers over 70,000 cubic feet of air per minute; the '360' that delivers over 45,000 cfm.; the '320' that delivers over 28,000 cfm.; and the AIRMATE '360' and the AIRMATE Blower Attachment that deliver over 32,000 cubic feet of air a minute. In all, there are thirteen models with the air volume and air power to give your tallest and thickest trees really thorough coverage.

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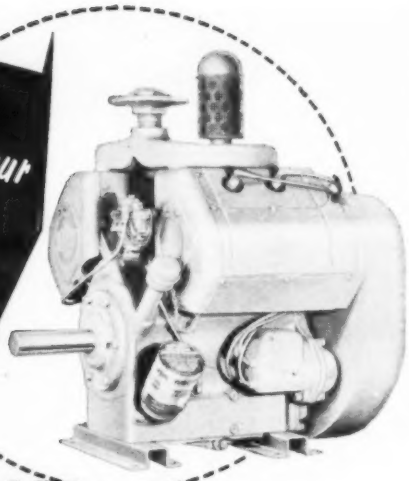

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APPLE SCAB

(*Continued from page* 17)

is often used alone or in combination with other fungicides just before, during, and after bloom. It is especially effective in preventing late summer spread of scab to the fruits. Discretion is necessary to avoid applying it in summer where dark residue might handicap sale of fruit. It is safe to the leaves, only fair in preventing leaf scab, and repeated sprays usually cause more or less russet around lenticels of apples. On Stayman its use may increase cracking of fruits.

A special value of the economical protectant glyodin (Craig 341) is the partial effectiveness of repeated applications against red mites. There are a few compatibility and injury problems that occasionally crop up, particularly on Golden Delicious and on varieties very sensitive to arsenical injury. With high concentrations russet may occasionally be a problem, and foaming in the tank is increased by russeting.

Captan (Orthocide 50 W and Stauffer Captan 50 W) is a good protectant which generally permits development of excellent fruit finish. On Red Delicious, Baldwin, and sometimes on Stayman, early sprays may cause numerous small dead spots on the leaves. This leaf-spotting is more common if captan follows quickly after oil sprays or after sulfur. It is much less serious in the sprays applied three weeks or more after petal-fall than in spring applications.

Among the eradicants, dinitro-o-cresol is useful as an early spring ground spray to kill the overwintering scab fungus in old apple leaves on the ground. Its greatest place is for badly scabbed isolated orchards. It must be followed by a regular schedule of foliage sprays.

Lime sulfur is fairly effective in "burning out" young visible leaf scab, and leaves a good protectant residue of sulfur. Unfortunately, it often reduces yield when several sprays are applied, especially if hot or wet weather follows its use. Only occasionally is its use justified after bloom.

Thorough applications of mercury fungicides, of which several are labeled for use on apples (Phix, Puratized), inactivate very young leaf scab. When used during or after bloom, they sometimes cause excessive leaf and fruit drop, or fruit russet, or reduced blossom bud formation. Hot or wet weather increases this injury. If limbs are very close to the outlet of air-blast sprayers, especially if concentrates are being used, the mercury injury may

be severe. The mercury deposits have moderate protectant value.

For use *promptly* after scab rains, several eradicants are valuable. The period within which they are effective is measured from the *beginning* of the wetting period, not from the end. Captan, though mainly a protectant, may prevent scab if applied within about 12 to 24 hours from the start of a scab rain depending on temperature. Lime sulfur is effective if applied within about two days after the start of a wetting period in warm weather or three days or longer when it is cold.

Phygon may be similar to lime sulfur in after-rain effectiveness, and it leaves a protectant deposit. Recent grower experience indicates that injury risk with Phygon is at a minimum when used as a dust applied by airplane or if as a spray, at a low rate such as ¼ pound per 100 gallons. Under critical conditions ¼ pound might not have as long an after-rain effect as ½ pound. In northern New England it frequently is used in early season, although even there it can cause injury. In warmer climates other fungicides usually are considered safer, partly because of the apple varieties grown.

The after-rain effective period for the mercuries is even longer than that of lime sulfur. Half-strength mercuries have a shorter after-rain effectiveness than standard strength, but the injury is less.

Some growers like the greater leeway in timing permitted by the combination of a half-strength eradicant with half strength of any of the protectants. A few growers have succeeded for two or three years with after-rain sprays of eradicants throughout the primary infection period as their main means of scab control. This usually has reduced the number of spring applications.

However, scab infection occasionally has resulted from rains the growers considered too short to permit it. In slow-drying areas the leaves remained wet longer than they realized. Furthermore, when it was time for the after-rain spray, wind or more rain sometimes interfered. If one fails to complete a before-rain or in-rain treatment he may meet the situation by the use of an after-rain eradicant. If he depends entirely on the after-rain spray and fails to get it on, there is no recourse.

Not Easily Eradicated

One should not be entirely confident that eradication of the scab fungus has occurred. Fruit scab usually survives application of eradicants and continues to produce

(*Continued on page* 43)

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In 1955 most areas, country-wide, saw normal rainfall. But normal rainfall was *not* enough.

For instance, in a lower lakes region, there was a crucial 18-day summer period when *no* rain fell—five other periods, 11 to 19 days each, when there was no *effective* rainfall. Crops were noticeably retarded.

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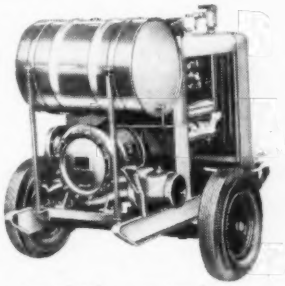

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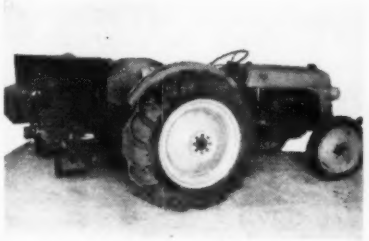

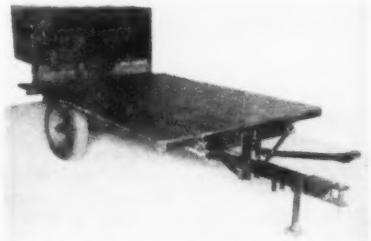

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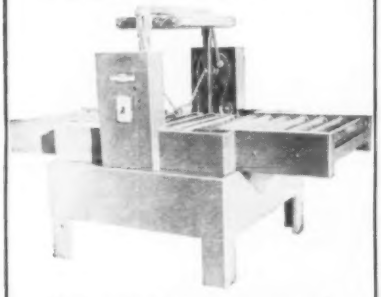

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DDD STOPS LEAF ROLLER

Red-banded culprit is held in check with two sprays

ALTHOUGH the red-banded leaf roller had been known as a minor pest of apples in western New York for nearly half a century, it never caused serious losses until shortly after growers began using DDT for control of codling moth. Now red-banded leaf roller is a common and major insect pest of apples; and sometimes of cherries and plums.

This insect is a rather insidious pest in that it may rather suddenly appear in large numbers in orchards where a few weeks or months before it could scarcely be found. Since DDD has become available to apple growers, a sure-fire program for red-banded leaf roller control has been developed.

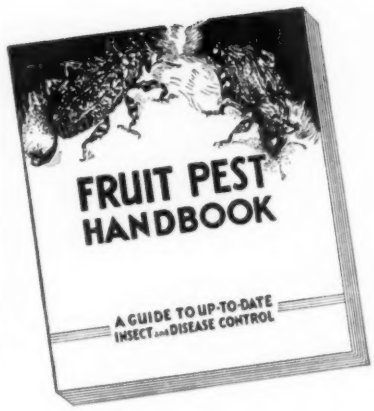
Most growers get excellent control with two applications of DDD at the rate of 2 pounds of the 50 per cent wettable powder in each 100 gallons of water. The first goes on in early June for the first brood, and the second in late July or early August for the second brood. In orchards where the trees form a rather dense, umbrella-like canopy right down to the ground, spraying from all four sides does a better job of control, and spraying underneath with a hand gun will give nearly perfect control.

Spray Program

In our orchards we put on two full strength parathion sprays early in June for curculio. This provides excellent control of first brood red-banded leaf roller. Because codling moth is an especially troublesome pest in our immediate area, we prefer to use DDT in our regular second brood applications. For this reason, and since many of our trees have rather dense canopies of foliage, we make a special application solely for combating red-banded leaf roller.

We put on this spray with a hand gun from inside and underneath the tree, using a hydraulic rig with DDD at the rate of 3 pounds in each 100 gallons. Great care is taken to thoroughly soak the foliage close to the ground. While this application takes several days to put on, it provides excellent control of second brood red-banded leaf roller. We have followed this program for a number of seasons and plan to continue it in the future.—*Ralph G. Palmer, Hilton, N.Y.*

When writing advertisers, be sure to mention AMERICAN FRUIT GROWER.



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APPLE SCAB

(*Continued from page* 41)

spores. Fungicides sometimes merely delay appearance of scab spots. Prolonged rains in late summer, 1955, caused spread to fruits in orchards where growers thought they had inactivated the scab and so omitted late summer protectants. Several years ago K. G. Parker, of Cornell, collected leaves on which scab spots appeared to have been burned out with three sprays of lime sulfur. He left them on the ground over winter. In the spring W. D. Mills found that they had produced abundant ascospores. Apparently the fungus had remained alive inside the leaf.

So far the fungicides associated with the highest yields of smooth fruits have been organic protectants. This gives an incentive to use protectants as far as possible, saving eradicants for emergencies. Occasionally one or two eradicant sprays in the spring may save a crop. It is profitable to aim at perfect scab control in the spring so that excessive applications will not be needed in summer when injury risk and cost are highest.

The key to getting perfect early-season control may be speed in covering the orchard. The fastest coverage is obtained by using the most powerful air-blast sprayer you can afford and spraying at a fairly high concentration, such as 8X. We find that spraying moderate-sized trees from one side before or during the early portion of each scab rain when there is unprotected leaf surface, gives perfect control. You must satisfy yourself that the air-blast is strong enough to force the spray entirely through each tree and out the top. If each leaf has a light speckled coverage of the protectant, the rain will wash it over the rest of the surface.

Rate and Cost of Spraying

With one of the biggest air-blast sprayers we were able to get early season coverage by spraying both sides and driving alternate tree rows in quiet weather. When wind was strong, we sprayed from one side with the wind, driving in each row. This usually is necessary with all but the most powerful sprayer. With a small or moderate-sized sprayer, one-side spraying is feasible only with small trees. With alternate row spraying, one man covered the orchard at an average rate of an acre every seven minutes with this powerful rig. This time included filling and mixing at standpipes.

When using 70 per cent paste sulfur, the total cost of a one-side

(*Continued on page* 46)

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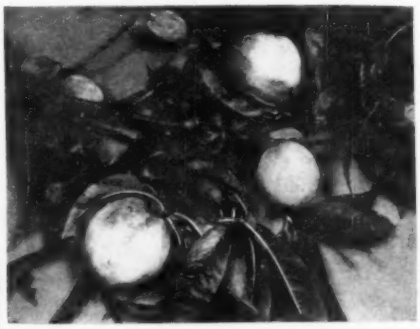
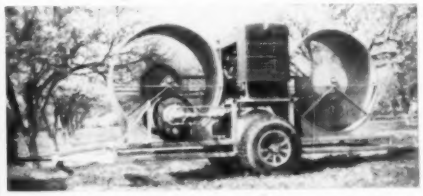


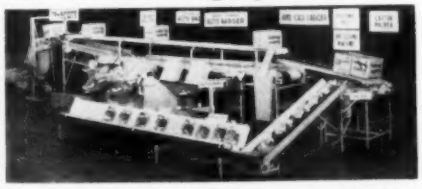
We could prolong our peach season and increase our profits with a new variety that starts bearing about the first of August and continues for six weeks. Round in shape with high quality flesh of freestone type, the new variety has been grown commercially in Michigan and has proved successful. A limited supply of planting stock is available to readers. Write Charles Greening, Greening Nursery Co., Monroe, Mich., for details.

It's Always Fair Weather



Growers on the West Coast are reporting favorably on a new portable blower-type heater. The machine can be easily moved through the orchard. Butane heat is forced out up to 100 feet on both sides by two high-speed fans. Power is provided by the well-known International 55 h.p. engine. Write David Elliott at International Harvester Co., 180 N. Michigan Ave., Chicago 1, Ill., or M. R. Robinson at the Robinson Blower & Engineering Corp., San Martin, Calif.

Efficient Packaging

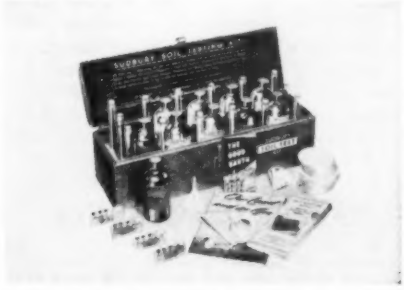


At the National Produce Prepackaging Show in Chicago I was quite impressed with a complete packaging installation. All orchard-tested, it included an Autodump, which automatically picked up the fruit and gently placed it on a Roller Grader which turned the fruit over and over for

- PACKAGING LINE
- ORCHARD HEATER

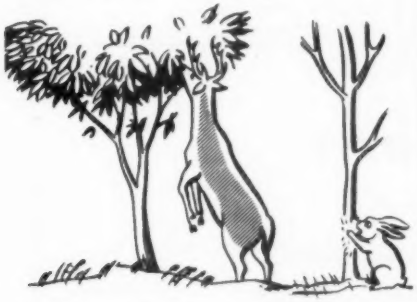
easy grading. A two-way distributing belt kept an adequate supply of fruit in reserve and distributed it to the weighing and filling machines. One double-headed Autobagger packaged the fruit accurately in 5-pound polyethylene bags. A Kodate printed a date on each bag and lifted the bag. A right angle take-away belt carried the filled, weighed bags to a bag closing machine, where they were placed on a take-away belt. A Carton Packer carried the closed bags to a rotating table where they were packed in master containers. The complete unit is ideal for the large grower. Write Reg Kiefer, President, Trescott Co., Inc., Fairport, N.Y.

It's Worth It



Knowing when and how much fertilizer to apply to the orchard floor is a sure way to greater profits. We have used the Sudbury Soil Testing Kit in our own orchards, and it has proved and paid for itself. Why not write to Sudbury Laboratories, Box 266, South Sudbury, Mass.

Don't Provide Feed



Each year millions of dollars are lost by growers through destructive animals killing fruit trees. A new tested chemical, easily applied, keeps the deer and rabbits away. One spray will do the job, and the cost is low. The product is called Goodrite z.i.p. and is made by the famous B. F. Goodrich Chemical Corp. and sold only through Larvacide Products, Inc., which handles many worthwhile orchard chemicals. Dick Porter will be glad to give you full details. Their address is 117 Liberty St., New York 6, N.Y.

GRADE COUNT SURPLUS ON JUNE BUDDED PEACH, as follows:

	6/12"	12/18"	18/24"	24/30"	30/36"	3/4'
Mayflower	.....	50	.....	550	775	480
Hiland	75	200	50	.....	.....	.....
Cardinal	500	1600	5550	475	4025	1025
Dixired	.....	975	2220	.....	.....	1125
Redcap	350	1050	1325	1200	350	.....
Coronet	1300	3950	6150	11025	1350	1100
Dixigem	.....	.....	25	150	.....	.....
Redhaven	.....	300	.....	1575	2750	1150
Keystone	2600	8150	5180	.....	25	1200
July Burbank Elberta	.....	.....	.....	.....	.....	650
Triogem	50	125	575	325	25	.....
Southland	450	100	.....	75	.....	500
Sunhigh	.....	225	825	60	500	300
Halehaven	.....	.....	50	1450	2275	420
Sullivan Elberta	75	1725	4750	1825	3400	1250
Belle of Ga.	50	350	700	200	800	450
Elberta, Reg.	525	3000	4025	.....	1000	2250
Shipper's Late Red	75	.....	.....	.....	125	150
Afterglow	.....	125	275	525	.....	425
Redskin	.....	75	50	225	550	150
Blake	300	1050	.....	.....	.....	.....
Ranger	.....	.....	250	25	.....	.....

Price Schedule:

	1-9	10-49	50-99	100-249	250-999	1000 & up
3 to 4 ft.	$1.05	.90	.75	.55	.45	.35
30 to 36 in.	.85	.75	.65	.50	.40	.30
24 to 30 in.	.70	.60	.50	.40	.30	.25
18 to 24 in.	.60	.50	.40	.35	.25	.20
12 to 18 in.	.50	.40	.30	.25	.20	.17
6 to 12 in.	.40	.35	.25	.22	.18	.12

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Brush Disposal Time Cut In Half

WOODS ROTARY CUTTER FOR BRUSH SHREDDING AND MOWING

Mr. Albert J. Livezey of Barnesville, Ohio told the 107th Annual Meeting of the Ohio State Horticultural Society of actual results with his Woods Rotary Cutter. He said, "We have no exact record of time saved but we feel that at least half is saved. While we have had only one season's experience, we feel that a Woods Rotary Cutter for brush disposal in the orchard is one of 'the finds' of our day. We have never, I believe, found anything about which we are so enthusiastic.

Machine shown is Offset Model 80 with orchard shield. 9 other models 42" to 114".

"Its use is not limited to brush disposal. It's the 'cat's meow' for orchard mowing." "Two or three farmers here have said that this Rotary Cutter is the best machine on their farms. The general farmer has many uses for this cutter. Corn stubble or corn stalks left after picking can quickly be put in shape for plowing or discing."

For a complete copy of Mr. Livezey's talk, send the coupon below.

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Please send me Mr. Livezey's talk

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Goggles alone 1.90
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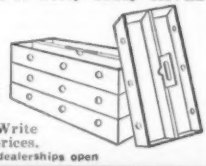
- TIME
- MONEY
- LABOR



Low in cost, caddies go to market in 8, 16, 24 or 32 quart crates. Write for details and prices.

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HONEOYE FALLS, N.Y.

APPLE SCAB

(*Continued from page* 43)

spray was only about $1.70 per acre, of which 16 pounds of paste represented about $1. Most protectants can be applied during rain; an increase of 25 to 50 per cent of the amount per 100 gallons is a safeguard for in-rain treatments. At this speed and this cost, sprays can be frequent if necessary, and seldom need the orchard be caught unprotected. The grower can well afford an extra set of nozzles or nozzle caps for the early-season high-concentration scab sprays, even if he prefers lower concentrations in summer.

Until such time as research uncovers more efficient fungicides or profitable scab resistant varieties, these fast, early season treatments will help insure moderate-cost scab control. Keeping scab suppressed every year reduces the chance of an outbreak when spring rains are excessive. Even though ascospores of the scab fungus can float for miles, those produced in your orchard are your greatest threat. THE END.

RASPBERRY INSECTS

(Continued from page 20)

containing 83 per cent actual oil. This emulsion is used at the rate of 1 part to 150 parts of water, and applied at the rate of 150 gallons of spray per acre. The first spray should be applied two weeks after the oval, reddish-brown eggs appear on the underside of the leaves near the edge, and repeated two weeks later.

No insecticidal control has been developed for the raspberry cane maggot. The removal and destruction of infested canes is of some value in the control of both the cane maggot and the root borer.—*D. J. Caffrey, USDA.*

WHAT'LL IT MIX WITH?
1956 completely revised chart

That is the important question in economical spraying. The compatible nature of spray materials is mighty important in safe and effective spraying and AMERICAN FRUIT GROWER has produced an ingenious

SPRAY COMPATIBILITY CHART

which tells at a glance just what materials will mix safely. Printed in three colors, mounted on Bristol board paper, it is an accurate guide in the safe and successful mixing of all spray chemicals.

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FRUIT TREE POLLEN SUPPLIES CO.
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BLIGHT CONTROL

(*Continued from page* 16)

year, applied in three to four bloom sprays spaced five days apart. In Ohio Dr. Winter suggests using 50 ppm on apples in three sprays, beginning at full pink and spaced five days apart, the last coming approximately with the petal-fall spray.

The per cent reduction of blight in your orchard resulting from antibiotic sprays will vary, as previously stated. In Indiana last year one grower reduced his blossom blight to only 4 per cent with just one streptomycin spray at full pink. Other growers reported up to 99 per cent reduction in blight where they used the three-spray program in bloom, and this on such susceptible varieties as Jonathan.

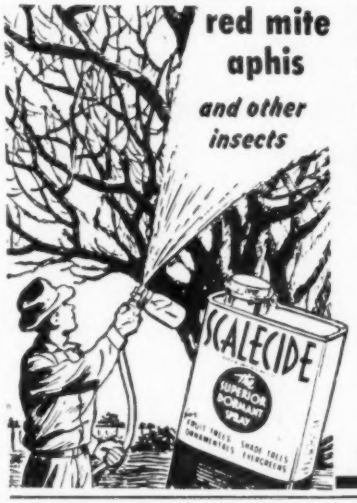
It must be emphasized again that for complete control of blight of apples the grower must carry on a rigid pruning program to remove all blight cankers. When he destroys the source of blight infection, he reduces his later problems of control. However, in areas where fire blight outbreaks are sporadic, the cost of major pruning surgery to remove deep-seated cankers must be balanced against the probability of disease striking in the spring.

Streptomycin is showing good control of blight of pear too. The accepted practice for blight control in western pear orchards has been the use of copper sprays in bloom. However, control has not always been satisfactory, and copper has produced some severe russeting of the fruit. In 1954 J. C. Dunegan and co-workers reported from Marysville, Calif., in their USDA tests with streptomycin that the antibiotic effectively controlled blight and did not russet the fruit. Actually they used a mixture of streptomycin and terramycin applied at various concentrations.

The lowest level that gave blight control comparable to that obtained with tri-basic copper sulfate was streptomycin at 30 ppm and terramycin at 3 ppm in the spray mixture. Five applications were made beginning in early bloom on March 29, and spaced 7 days apart. The cost of this program as compared to the accepted copper spray program will determine the practicality of antibiotic sprays.

In eastern and midwestern areas of the country pear blight may be controlled satisfactorily with three applications of the antibiotic in concentrations of 100 ppm. Carl and Wallace Ward of Burt, N.Y., report that three applications of streptomycin spray last spring in their small Bartlett pear orchard gave practically complete control of blight. THE END.

KILL SCALE



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Scalecide kills scale, red mite, aphis, bud moth, case bearer and other pests that can be controlled at this time by any spray or combination of sprays. One gallon makes 50 gallons of spray. 1 pint, 85c; 1 qt., $1.25; 1 gal., $3.00.* Get Scalecide now from your seed, hardware or garden supply store. If your dealer cannot supply you, order direct.

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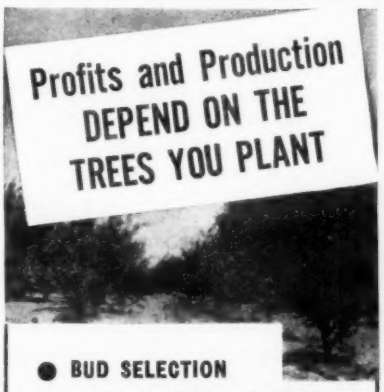

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Dormant Sprays
...the cheapest crop insurance you can get!
You of course don't have to use ELGETOL dormant sprays this year ...it's possible that you won't have any insect or disease damage to your fruit. But do you think you can afford to take the risk?
What are the odds? Well, all you have to do is put down the value of your annual crop beside the cost of an adequate ELGETOL spray program. When you compare the figures it becomes obvious that the cost of complete insect and disease control is really insignificant.
Have a talk with your ELGETOL dealer and the men at your local agricultural station about the spray requirements in your area... you won't regret it!
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THIS NEW BOOM NOZZLE IS ENTIRELY DIFFERENT THAN CONVENTIONAL NOZZLES. BY MAKING A FLAT FAN SPRAY DISTANCES NEVER DREAMED OF ARE OBTAINED. ONLY A TEST CAN PROVE IT.

What fruit growers tell us.

"For many places your NEW BOOMS do better work than my expensive SPEED SPRAYER"

"I never knew what efficient spraying was until I used your BOOMS"

"I saved 15% of spray material with NEW BOOMS you furnished."

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Miller Fruit Spray
the all-purpose formula with the new wonder pesticides controls both insects and diseases.
2 lb. bag makes 16 gals. spray, $1.80 per bag.
Also avail. in 50 lb. size.
Send check or M. O. to . . .

MILLER CHEMICAL & FERTILIZER CORP.
BALTIMORE 18, MARYLAND

Use an

ALL-PURPOSE SPRAY

if you grow just a few fruit trees or bushes

By C. R. CUTRIGHT
Ohio Agricultural Experiment Station

AN all-purpose fruit spray is a single mixture that can be applied to all fruits with safety and a fair degree of efficiency.

During the past few years there has been a wide use of these formulas. In fact, the enthusiasm for them has been so great that it has been difficult to keep their use within proper limits. It must therefore again be stated that the all-purpose spray is *for the grower who has only a few trees, vines, and/or bushes.* More than half an acre of fruit should be handled by commercial or modified commercial spray formulas.

It should also be emphasized that all-purpose sprays give best results on stone fruits, pears, grapes, and berries. Apples need many extra spray applications for good results; in fact, apples are generally unsuited for a straight all-purpose spray schedule.

After two years of use of the all-purpose formula recommended by the Ohio Agricultural Experiment Station in the February, 1954 issue of AMERICAN FRUIT GROWER, it seems advisable to review the all-purpose spray situation.

There have been some difficulties, though for the most part these have now been eliminated. For example, the use of lead arsenate in an all-purpose formula has frequently caused injury to peach foliage and young growth. Decreasing the amount of lead arsenate will help this condition.

In the case of the methoxychlor-malathion-captan formula some instances of injury to peach foliage have also been reported. These have always been from pre-mix package material and seem to have been due to the use of an improper diluent. Injury such as this can, of course, be avoided by purchasing the ingredients separately and mixing them in the spray tank. However, it is thought that manufacturers are now using diluents that are compatible and therefore the customer is assured of safety.

At present, the methoxychlor-malathion-captan formula is by far the most popular formula. It is recommended by practically all states

GRAFTWAX TREE HEALANT

Since 1929 excels in grafting; cures tree and plant wounds, blights, used for cavities. Repels rodents. Adhesive, waterproof. IT SEALS AND HEALS. APPLY COLD. Put up in 1 lb. cans, $1.05 per lb., $2. per 2 lbs., $6. per 6 lbs., postpaid. W. of Mississippi R. add 15c per lb. Free Sample.

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Temperature, humidity, rain, all seriously affect spraying and dusting. Spray injury can be avoided by understanding five important weather factors.

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and check weather conditions when spraying. Only 10c each.

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Each installation of United Cork Companies' B.B. Corkboard is *specifically* planned for the requirements of the individual fruit storage area. And each installation is followed up by United Cork Companies' engineers to assure full satisfaction to the fruit grower.

You are invited to discuss your low-temperature insulation requirements with us.

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BRANCH OFFICES IN PRINCIPAL CITIES

from Virginia through New England and as far west as Indiana and Michigan. Different states may vary the proportions of the different chemicals somewhat, and the same is true of the one-package formulations produced by various spray chemical companies. This variation is not of serious concern provided that each chemical is present in sufficient amount to perform its purpose. In general, the author prefers a formula carrying somewhat greater amounts of malathion than of methoxychlor (see box).

Many other all-purpose formulas are available, some of which may contain as many as six different spray chemicals. All of these have certain advantages but they are not as generally adaptable to all fruits and situations as is the methoxychlor-malathion-captan or ferbam mixture (see box).

THE ALL-PURPOSE SPRAY FORMULA FOR THE HOME FRUIT GROWER

For Spraying Pears, Peaches, Plums, Cherries, Grapes, Brambles, Strawberries, and Apples*

Materials	Amounts used for: 1 gal.	10 gals.	100 gals.
Methoxychlor, 50% powder	1 T	4 ozs.	2½ lbs.
plus			
Malathion, 25% powder	2 T	5 ozs.	3 lbs.
or			
Malathion, 50% emulsion	2 t	6 T	2 pts.
plus			
Captan	1½ T	3 ozs.	2 lbs.
or			
Ferbam	1½ T	3 ozs.	2 lbs.

T = 1 level tablespoon
t = 1 level teaspoon

* The all-purpose formula may be used on apples but generally a less expensive formula is preferred.

Ready-mix, one-package formulations of the methoxychlor-malathion-captan formula, may be purchased from the retail agencies or stores of the following companies:

Acme Quality Paints, Inc., Detroit 11, Mich.
California Spray Chemical Co., Richmond, Calif.
Diamond Fertilizer Co., Sandusky, Ohio.
Eastern States Farmers Exchange, West Springfield, Mass.
E-Z-Flo Chemical Co., 2011 N. High St., Lansing, Mich.
Farm Bureau Co-operative Assn., Inc., Columbus 16, Ohio.
Indiana Farm Bureau Co-operative Assn., Inc., 47 S. Penn, Indianapolis 9, Ind.
Miller Chemical & Fertilizer Corp., 2226 N. Howard St., Baltimore 18, Md.
Miller Chemical Co., Charleston, W.Va.
Niagara Chemical Div., Food Machinery & Chemical Corp., Middleport, N.Y.

Other all-purpose fruit spray formulas from:
E. I. duPont de Nemours & Co., Wilmington, Del.
Garden Products Co., St. Louis 18, Mo.
Indiana Farm Bureau Federation, Indianapolis, Ind.
Miller Chemical Company, Omaha, Nebr.
B. G. Pratt Co., 204 Twenty-first Ave., Paterson, N. J.
Southern States Co-operative Inc., Southern States Bldg., Richmond 13, Va.
Stark Bro.'s Nurseries, Louisiana, Mo.
Williams & Company, Eureka Springs, Ark.

The success of any formula still depends on covering every leaf and fruit with the spray and on applying the number of sprays recommended in your official spray program.

A new Ohio home orchard schedule (Leaflet No. 1) is based on the all-purpose spray formula with a different schedule for apples. This can be obtained from the Agricultural Extension Service, Ohio State University, Columbus 10, Ohio. THE END.

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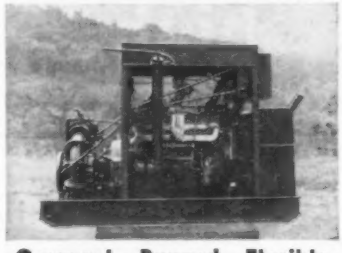

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Weight 4 lbs. Full Cone adjustable long and short spray.

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Weight 2 lbs. 12 ozs. Same High Quality with all the KEN features.

KEN M-41 Single Gun
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M-6 Machine Mounted Double Gun

M-L7 Machine Mounted Single Gun, Locking Type

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STATE NEWS

(*Continued from page* 11)

Crop Prospects Good

ARKANSAS—Following a year of fairly adequate moisture, fruit growers are in a better frame of mind. Heavy plantings of new strawberry beds made good progress through the early part of the season and came through the late summer and early fall drought in fairly good shape. Another increase in strawberry plantings is expected. Acreage in 1956 will be about double that harvested last year.

Peach growers have a heavy bud crop, and we are hoping that this crop will escape late spring freezes. There will be some increase in grape production this year, with new vineyards coming into bearing and a further slight expansion in acreage.—*Earl J. Allen, Scc'y, Fayetteville.*

Hours of Cold

GEORGIA—The Middle Georgia peach section had 1,100 hours of cold below 45° F. and the South Georgia peach section 717 hours, as of January 9. This would indicate that insufficient hours of cold would not be a problem in 1956 in any of the North Georgia peach growing area.

Large numbers of trees are being set in both the Middle and South Georgia peach sections. Most of the varieties being set are the Weinberger varieties, but considerable numbers of July Elberta, Sullivan Elberta, and regular Elberta are being set in the Middle Georgia peach section also.

Planting is being delayed in the South Georgia peach section by dry weather. Growers are waiting for rain before resuming their planting operations.—*Earl F. Savage, Horticulturist, Experiment.*

Illinois Centennial

ILLINOIS—The Illinois State Horticultural Society held its one hundredth annual meeting November 28 to 30. A popular and entertaining event of the convention was a re-enactment of the 1855 board meeting.

New officers of the society, who also serve as officers of the Illinois Fruit Council, are Frank Chatten, Quincy, president; Paul Mallinson, Geneseo, first vice-president; J. Bon Hartline, Anna, second vice-president, and Harold J. Hartley, Carbondale, secretary-treasurer. Curt Eckert, of Belleville, retired as president.—*Eldon S. Banta.*

Shaving shenanigans shared the spotlight with apples at the Centennial meeting of the Illinois State Horticultural Society. Jean Myers, Illinois Fruit Queen, shaves the beard off Lester Stone, while (left to right) Harvey Hartline, Bon Hartline, and Curt Eckert kibitz. Bon Hartline's six-week-old beard, incidentally, took top honors in the society's beard-growing contest.—Photo by E. S. Banta.

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From where I sit ... *by* Joe Marsh

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From where I sit, the man who deserves your patronage, and friendship, is the man who makes an effort to see things from your viewpoint. We all have our characteristics. Some people (like me) are always in a hurry, others are more easy-going — just as some people dote on buttermilk, while others prefer a quiet glass of beer. It pays to make a few allowances for the other fellow's likes and dislikes.

Joe Marsh

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Freeze Damage in Northwest

AN early freeze in November caused extensive damage to fruit trees in the Northwest. The unseasonably cold weather caught trees and small fruits before they had time to go through their natural "hardening off" process, according to Dr. John Snyder, extension horticulturist at the State College of Washington.

WASHINGTON — Considerable damage has been reported to apples, cherries, and other tree fruits throughout central Washington. Severe damage to strawberries and cane fruits in western Washington was also reported.

Horticulturists advised a policy of "no pruning" until the end of winter. Declared Bill Luce, county agent at Yakima, "It is my opinion that most of our injury can be overcome by careful management. Tacking down loose bark will save many a tree from being injured for life."

PAUL STARK, JR., OF STARK BRO'S. NURSERIES, Louisiana, Mo., made a special trip to the Northwest in December to evaluate the winter injury situation. He reports:

"Severe injury to apple trees is quite spotty, and most of them should recover with no serious reduction in tonnage next season. There are some instances, however, where young trees were killed back to the ground, and other situations where fairly severe injury was done to such varieties as Golden Delicious and Red Rome Beauty.

"The sweet cherry industry was the hardest hit with very severe injury to all ages of trees. It is highly doubtful if any crop to speak of will be produced on sweet cherries next season, as most of the spurs were very severely injured and many trees show severe to moderate crotch and trunk injury.

"Pear spurs were injured, but it is my opinion at this time that there is not enough injury to seriously cut down on next season's crop. Japanese plums were very hard hit, but peaches and apricots got by with only minor injury in certain locations."

OREGON—Some growers are reporting this year's filbert crop destroyed. Charles Finch, from Clackamas County, is among growers who claim that their filberts are completely gone for 1956.

He adds, "I expect to have to cut off all of last season's Boysenberry cane growth. This means no Boysenberry crop for me next summer. Where the wind blew off the snow, our strawberry plants are also gone. Prune trees appear to be damaged to some extent and we will have no cherries."

In the large acreage of strawberries in the noted Silverton Hills strawberry area, damage is said to be very spotty. Milton Foote reports his entire acreage of two-year-old Northwest variety gone.

Anthony DeSantis, plant grower, reported in January that 45 acres of Marshall strawberries appeared to be in fine shape.

Spraying of fruits should be done even more particularly this year that in years of perfect weather, Edward K. Vaughan, plant pathologist at Oregon State College, said in early January.

IDAHO—Fruit growers in Idaho also experienced cold damage. On November 15 temperatures fell to –30° F. in Boise and –13° in a few spots around Emmett.

Anton S. Horn, secretary of the Idaho State Horticultural Society, reported, "Some fruit buds were killed, some cherry wood was browned, and some young cherry trees were hurt. Temperatures varied throughout the state, and some areas appear to have escaped much damage."

In some orchards fruit was still on the trees. The freeze came so quickly that some growers didn't have time to bring in apples stacked in boxes in the orchard.

The full extent of the injury throughout the Northwest won't be known until spring. If winter temperatures go very low, injury will be more serious than if the weather is mild. Meanwhile, growers have adopted a "wait and see" attitude.

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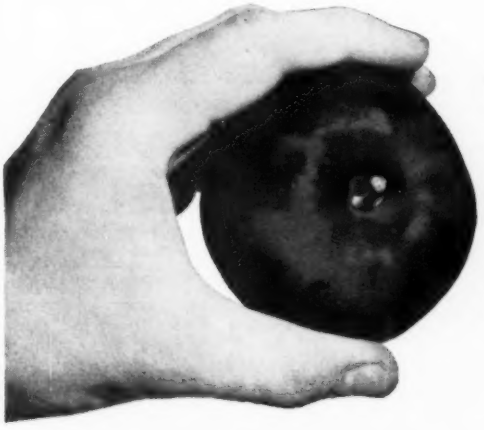

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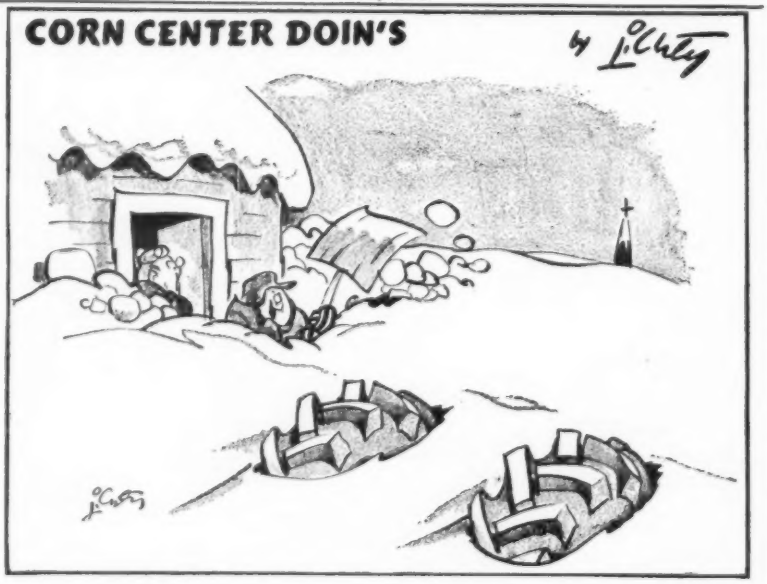

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American Fruit Grower

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• *Fruit for Health* •

Stabilization—The No. 1 Problem

ALMOST every mail brings a letter saying that the No. 1 problem in the fruit industry is stabilization so as to end the reign of "feast and famine."

When Northern Spy apples are going to processors for two dollars a hundred, the grower has no alternative but to use the bulldozer. At the same time, the processor says, "I can't get enough apples." And the jobber says, "These low prices obstruct movement because prospective buyers hope to buy at still lower prices."

On the other hand, when prices are relatively high, this position is reversed and people buy actively for fear that prices will go higher. And so the pendulum swings back and forth, with "the poor getting poorer and the rich getting richer."

Anything that smacks of artificial stabilization is highly distasteful to fruit growers. We still glory in our freedom to do as we wish and to call ourselves "rugged individualists."

All of this is well and good, but there is such a thing as carrying matters too far. The manufacturer of automobiles has some idea of stabilized prices. The distributor of gasoline knows pretty much what the price will be. Just try to see how many cut prices you can get on standard items which you purchase. Yet the fruit grower has no idea on price until he markets his crop.

There must be enough intelligence in the fruit industry to bring some sort of stabilization to it. Perhaps we do not need to give up our rugged individualism. Perhaps we can still do much as we please. In any event we have got to do something, and soon.

Apple Flakes

ANYBODY interested in apple flakes? Back in World War I at the University of Illinois Dr. W. P. James, assistant pomologist, worked out a process for getting apples to the men in the trenches who were begging for "fruit, not as a luxury, but as a source of fruit sugar, fruit esters and acids, to aid in digestion and give a balance of ration."

His results were published in Circular 213 of the University of Illinois, March, 1918. Using an apple peeler he sliced apples into thin, narrow strips, and dried them at 120° F.—a relatively low temperature for drying—using a fan to keep the air circulated. Out of this process came what he called "apple flakes." These he could grind and develop into a powder, also. It seemed like a good idea at the time, but that was the end of it.

Now Dr. A. L. Kenworthy of Michigan State University has come up with much the same idea only from a most unusual background. The National Apple Institute has been interested in a complete story of the chemical composition of the apple. Arrangements have been made with Michigan State University to do this work. In the process of preparing samples of apples for analysis, Dr. Kenworthy sliced apples quite thin (about an eighth of an inch) but put them in an oven with forced ventilation at a temperature of about 185° F. It took about 8 hours for the samples to dry. They were then to be turned over to the chemists for analysis. However, either because Dr. Kenworthy was especially hungry one morning or because he had a natural inclination to sample some of his products, he ate some and was agreeably surprised. They were crisp, sweet, and altogether very attractive.

Now here he is with a new product as a sideline from some chemical work and unable to find who might be willing to exploit or develop it. Is this something for the industry?

Fruit Talk

Says **Dr. E. L. Loewel** of *Das alte Land* in Germany, "The **face** of a pack represents the **face of the man,** and the **contents** represent his **character.**"

To bolster your belief in the **value of fruits and vegetables** get "Fruit and Vegetable Facts and Pointers—Nutrition" from the **United Fresh Fruit and Vegetable Association,** Washington, D. C.

There is a direct relationship between **daily temperatures** and consumption of **lemonade** products, according to the Exchange Lemon Products Company. From a very low level during November, December, January, February, March, and April, the rise is terrific until the peak is reached during June, July, and August, only to fall off just as sharply.

Fruit thinning is now requiring the most labor of any orchard operation, according to the Fruit Industries Research Foundation, of Yakima, Wash.—**50 hours an acre** of the 162 required for the entire crop, including harvesting.

Russian scientists maintain that as much as 40 to 60 per cent of the phosphorus used by a plant may come from the *applied* fertilizer. This is a considerably larger amount than has been previously thought.

The **farmer's share** of the **consumer's dollar** is now back to 40 per cent, where it was in 1935-39.

The bill for **marketing farm food products** was 28 billion dollars in 1955 compared with 17.7 billion in 1947, whereas the **payment to farmers** is nearly the same (actually less—18.3 billion in 1955 compared with 18.7 in 1947.)

The use of **marketing agreement and order programs** in the marketing of fruits continues to increase with the addition of Florida avocados, Florida limes, and California dates to a list which now includes most oranges, grapefruit, lemons, figs, raisins, dried prunes, almonds, walnuts and filberts, as well as grapes, peaches, pears, plums, and pecans in certain specified areas **(west of the Rockies).**

The impact that a **new manufacturing process** may have on a commodity is the effect on leaf tobacco from the new **"homogenized tobacco leaf,"** in which tobacco is ground or crushed and then formed into thin pliable sheets or ribbons to replace the full leaf.

Per capita consumption of fruits and fruit juices declined in 1954 to 193 pounds, compared with 225 pounds in 1946, distributed as 53 per cent **fresh,** 24 per cent **canned,** 16 per cent **frozen,** and 7 per cent **dried.**

Bulk motor truck shipments of fresh oranges has risen from 122,000 boxes in 1947-48 to 1,800,000 boxes in 1954-55.

—*H.B.T.*

Coming Next Month

- Fruit Areas of America—Georgia
- Some New Ideas on Peach Pruning
- How to Renew Your Orchard
- Grower Experiences with Dwarf Trees
- The Stanley Plum

Why mix two
when one cover spray
will give you
the most clean fruit?

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contains both DDT
and Parathion

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contains both DDT
and Malathion

Simplify your spraying program by using *one* of these Black Leaf cover sprays. You'll stop the bugs, save work, and get your biggest clean fruit total.

In Black Leaf 253, an exclusive process impregnates each particle of the tobacco base with both DDT and Parathion. There's no mixing problem for you. Just dump Black Leaf 253 in the water as the spray tank fills.

Black Leaf 258 combines DDT and Malathion by the same process. Again, no mixing. Only Black Leaf offers you these timesaving formulations.

Either of these dustless compounds controls codling moth, orchard mites, red-banded leaf roller, European red mites, grape berry moth, and similar insects attacking fruit.

You get long-lasting insect protection with practically no visible residue. You get high-profit finish and color. Ask your dealer for either Black Leaf 253 or Black Leaf 258—in 2½-pound bags, or 50-pound drums.

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Free-flowing, pelleted UREA 45 is easy to store, easy to handle and easy to spread. Eight pounds feed a full-size apple tree well for the season. One ton supplies 900 pounds of nitrogen—enough to feed several acres of fruit.

Use UREA 45 for all your fruit crops. One top-dressing or side-dressing application provides all the nitrogen needed for heavy bloom and set, for vigorous, dark-green foliage and for big crops of high-quality fruit. Get UREA 45 to make fruits produce profits.

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